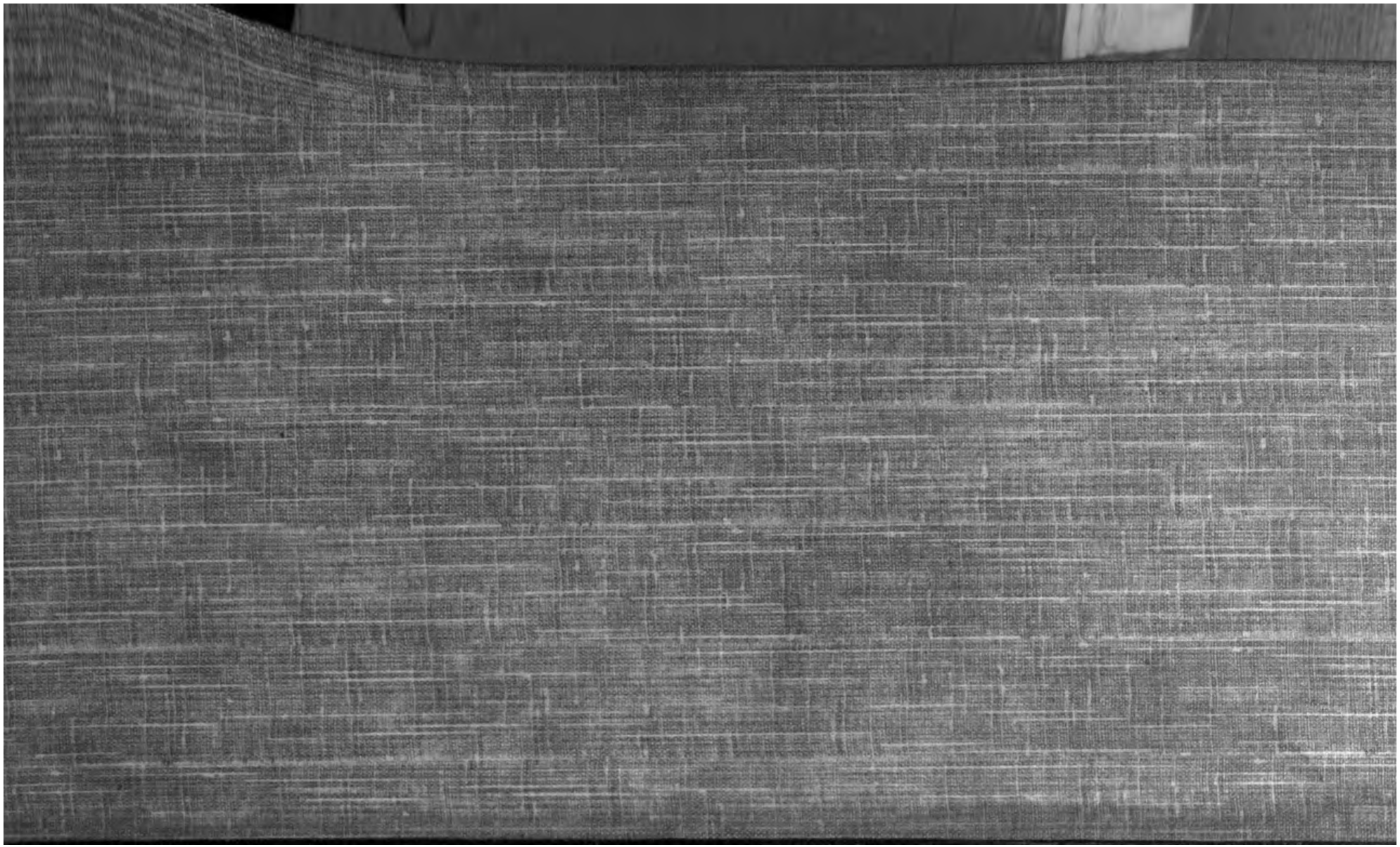

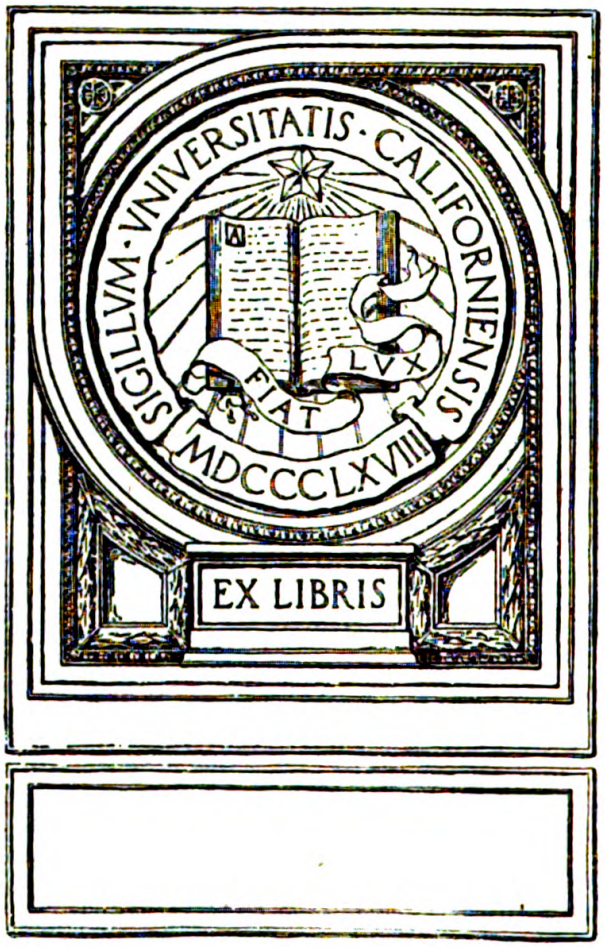
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REVIEW OF
NEUROLOGY AND PSYCHIATRY

REVIEW

OF

NEUROLOGY AND PSYCHIATRY

FOUNDED BY

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ERRATUM. MARCH NUMBER.

DR HENDERSON'S PAPER.

Page 111, line 28. *Read* "The method of procedure is as follows: As soon after the puncture as possible draw up the *stain* to the mark 1 on the pipette, and then draw up the *cerebro-spinal fluid* to the mark 11."

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UNIV. OF CALIFORNIA

Review
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Neurology and Psychiatry

Original Articles

FAMILIAL VON RECKLINGHAUSEN'S DISEASE.

By J. D. ROLLESTON, M.D. (Oxon.), and N. S. MACNAUGHTAN, M.D. (Glasg.),
Assistant Medical Officers, Grove Fever Hospital, London.

(Plates 1-2.)

THE occurrence of multiple neuro-fibromatosis among several members of the same family was drawn attention to by von Recklinghausen in his monograph in 1882, and has since received notice from several writers. As Feindel tersely put it, "Generalised neuro-fibromatosis is always congenital, often hereditary, and sometimes familial." Ten cases illustrating the hereditary or familial incidence of multiple neuro-fibromatosis were collected by Alexis Thomson in 1900, and we have ourselves drawn up a table at the end of this paper of similar cases which have been published since that date, including the family which forms the subject of the present study. This table also shows that the heredity may be varied in the disease, *i.e.*, may be complete in one member of the family and incomplete in another, as is strikingly exemplified in our own cases.

A girl, aged 13 years, was admitted to the Grove Fever Hospital on 12th November 1910 with mild diphtheria. She received 4,000 units of antitoxin, and beyond a trace of albumin in the urine for one day, no complications developed. On admission the attention was at once attracted by the deformity of the face shown in Fig. 1, which represents a nævoid growth involving the right half of the upper lip. The skin over it was bluish, especially when the cheeks became flushed, and was covered with fine hairs. The correspond-

ing alveolus had a prominent bony ridge, and there was a small nodule at the margin of the hairy scalp. Examination of the rest of the cutaneous surface was then made with the following results. In addition to a general yellowish tinge of skin three varieties of lesions were met with, the distribution of which is seen in Fig. 2. 1. Punctiform pigment spots; 2. *Café-au-lait* patches; 3. Blue spots, *i.e.*, the first stage of molluscous tumours. The pigment spots and the larger *café-au-lait* patches were scattered over the neck, trunk, arms, and thighs. Their distribution was for the most part irregular, but as is seen in the diagrams in at least two places there was a suggestion of the zosteriform arrangement to which Feindel has drawn attention. The blue spots, which were less numerous, were found on the trunk and thighs, and one was seen on the left upper arm. The heart and lungs were normal, von Pirquet's reaction was negative. Beyond slight scoliosis there was no skeletal deformity. The intelligence was above the average; she had won several prizes at school. Her stay in hospital was uneventful, apart from a bout of vomiting which occurred on 16th December, when a previous history of similar attacks occurring about every two months was obtained. She was discharged in good health on 24th December, when it was noted that the blue spots had increased in number and size since admission.

The sister, aged 5 years, who was admitted to hospital about the same time, had a more severe attack of diphtheria, which was treated with 12,000 units of antitoxin, and was complicated by albuminuria and palatal palsy. Like the elder child she presented a general yellowish tinge of skin and *café-au-lait* patches on the neck and trunk (Fig. 3), but the limbs were free, and there were no blue spots. The possibility of a familial form of von Recklinghausen's disease having now suggested itself, we invited the father to call and submit to examination. He was a man aged 47; a printer by trade. He had had no illnesses beyond scarlet fever and measles in early childhood, and an attack of pneumonia thirteen years previously. Like his eldest daughter he suffered from "bilious attacks" which occurred about once a month. As Figs. 4 and 5 show, the trunk was thickly set with molluscous tumours, mostly sessile, in all stages of development. There were a few lesions on the face and limbs. The skin of the abdomen and inner side of the thighs showed a yellowish ground-

FIG. 4.

FIG. 1.

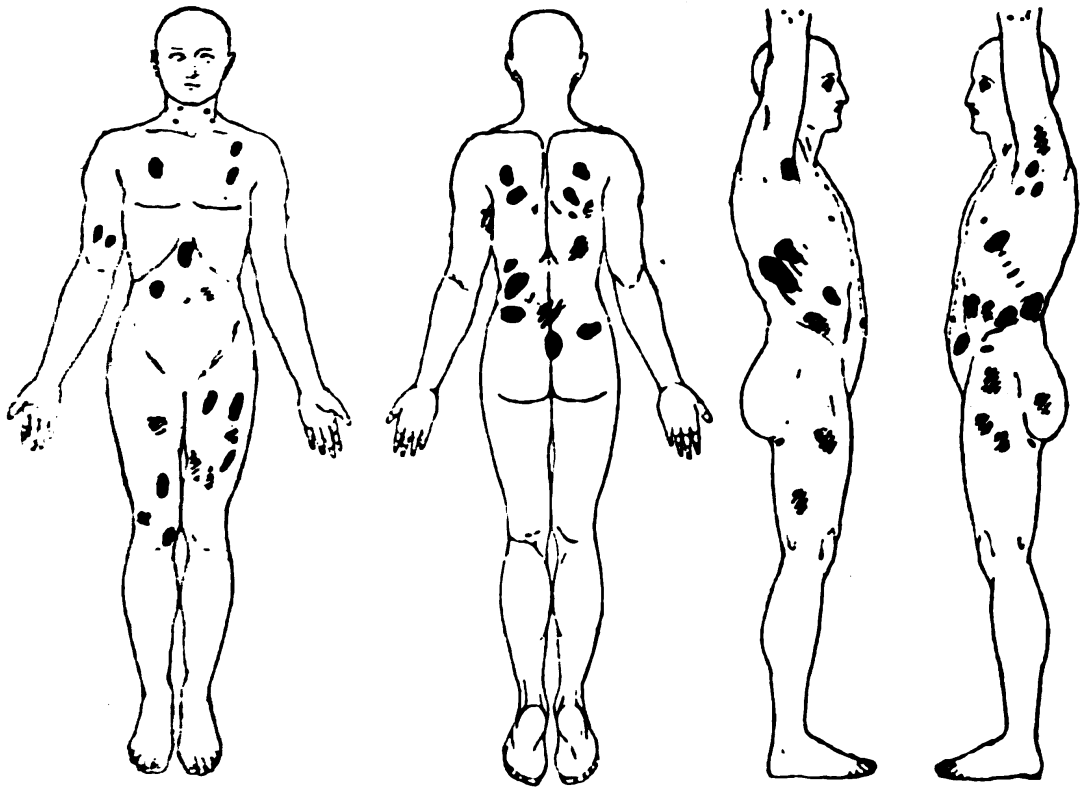

FIG. 2.—Daughter, aged 13. Pigmentation in black; the shaded parts represent the blue spots.

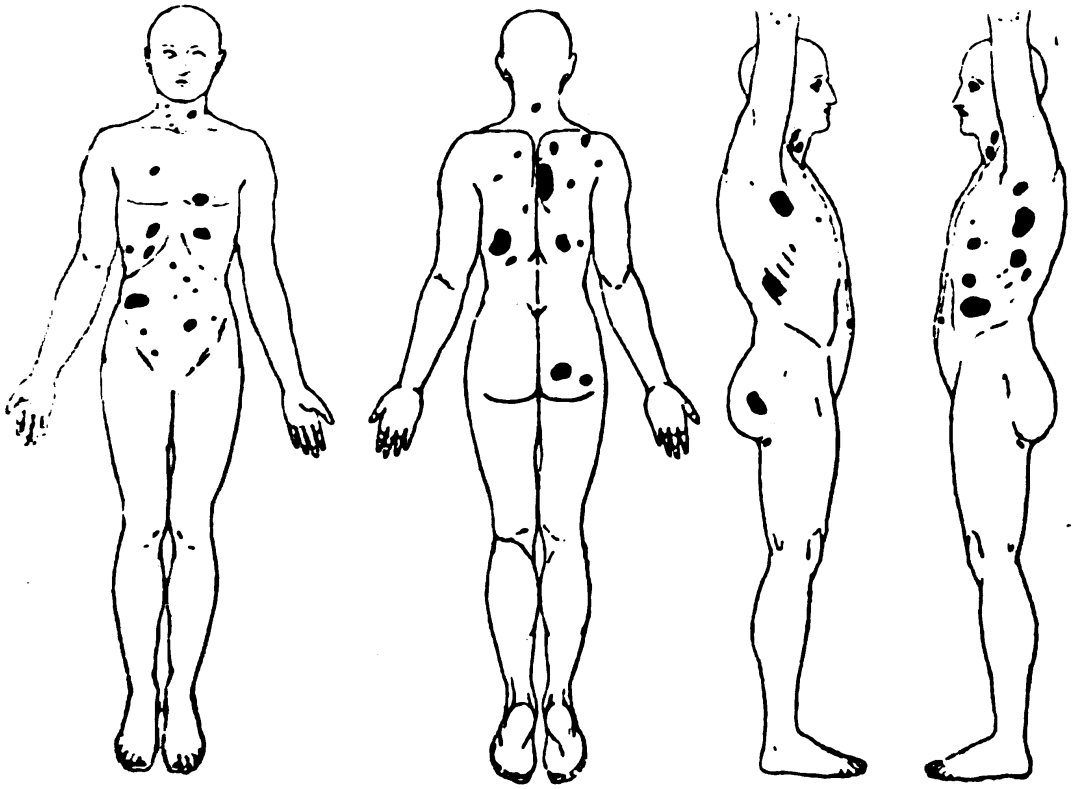

FIG. 3.—Daughter, aged 5. Areas of pigmentation.

work of pigmentation with pigmented spots and *café-au-lait* patches. The pigmentation of the anterior axillary folds was well marked. There was no pigmentation of the buccal mucosa. There were no skeletal deformities nor mental symptoms. The knee and ankle jerks were active. The plantar reflex was flexor. The heart and lungs were normal. The blood-count was normal. The eosinophiles which in some cases of von Recklinghausen's disease are as high as 15 per cent. (Galliard) did not exceed 2 per cent. in either the father or the two girls. Blood pressure, 130 mm. Hg. Microscopical examination of one of the father's tumours and one of the eldest girl's blue spots showed the presence of fibrous tissue but no nerve fibres.

The other two children, a boy aged 14 years and a boy aged 10 years, showed a slight yellowish tinge of skin like their sisters, but no molluscum nor pigmentation at that time. The youngest boy, however, when admitted to hospital for diphtheria in the following March presented a few pigment patches on and between the shoulders, and a larger patch at the top of the internatal cleft and on the left buttock.

The paternal grandparents were both alive, and were seen by us. The grandfather, aged 72, had numerous small nævi on the trunk, but no molluscum, punctiform spots, nor *café-au-lait* patches. The grandmother, aged 73, had some nævi on the trunk, and a large area of pigmentation in the lumbo-sacral region. Both showed a slight yellowish tinge of skin.

The father and his two daughters were shown on 13th January 1911 at the Clinical Section of the Royal Society of Medicine, when they gave rise to an interesting discussion. Opinions were divided as to the nature of the growth on the elder child's upper lip, some maintaining that it was an angeioma, and others that it was a plexiform neuroma. The correctness of the latter view was proved at an operation at the Metropolitan Hospital on 25th January, when Mr P. L. Daniel removed the tumour. It was found to consist of a mass of solid convoluted cords imbedded in fatty and fibrous tissue, and to be attached by a pedicle to the right infra-orbital nerve, thus presenting macroscopically the appearance of a plexiform neuroma. The microscopical examination (Fig. 6) confirmed this diagnosis. There was no evidence of hæm- or lymphangiectasis, but some large vessels were seen in the section, and probably accounted for

the blue coloration of the skin and hirsuties present as well as for the bony ridge on the corresponding alveolus.

It would perhaps be more accurate to use the term employed by Mr S. G. Shattock of plexiform fibroma of nerve in preference to plexiform neuroma, as it is generally agreed that there is no new formation of nerve in the condition. The somewhat similar case reported by Messrs Abbott and Shattock of macroglossia neuro-fibromatosa suggested to us that the term macrocheilia neuro-fibromatosa, or to be more precise hemimacrocheilia neuro-fibromatosa, would be a suitable description of our case, it being understood that, contrary to what exists in ordinary macrocheilia, there was no lymph- or hæmangiectasis present.

Although the cervico-facial region is the commonest situation for plexiform neuromata, there is no case to be found in the literature of the growth being confined to the lip as in the present instance. In only one of eighty-eight cases of plexiform neuroma collected by Delfosse in 1904 was the lip affected, viz., in Chipault's case, in which the lower lip as well as the tongue and mastoid region was involved. In that case also before the operation the diagnosis of angeioma had been made. In a case recently recorded by Cole, in addition to multiple neuro-fibromatosis, there was a plexiform neuroma of the right cheek which involved both halves of the upper and lower lips.

In our own case, before the lip tumour had been removed and microscopically examined, we applied the term invented by Chauffard of pigmentary dermo-fibromatosis to the condition illustrated by our patients in preference to neuro-fibromatosis, for three reasons. First, the tumours appeared to be independent of the adjacent nerves; secondly, there were no nodular swellings of the deeper nerves; and thirdly, the tumours removed contained no nerve fibres.

The existence of a variety of von Recklinghausen's disease in which the nerves are not involved is confirmed by Raymond who instances a case of his own, and quotes other examples from the literature. He adds, however, the warning that a very complete macroscopic and histological examination of the nervous system, including the peripheral and visceral nerves, must be made before the immunity of the nervous system can be established. Cases of pigmentary dermo-fibromatosis have also recently been recorded by Pic and Gauthier and by Charpentier. In none of

these cases, however, was the complete examination required by Raymond carried out. A complete examination was obviously impossible in the father of our own cases who was naturally unwilling to have tumours removed which had never caused him any pain or inconvenience.

In any case there can be no doubt that the condition presented by the members of our family exemplifies the different varieties of von Recklinghausen's disease, especially the incomplete forms or *formes frustes*. The two girls offer an excellent example of the disease developing in different stages. In the elder girl the pigmented patches preceded the blue spots, *i.e.*, young molluscous tumours. In the younger girl and boy no molluscous tumours had appeared, but it is highly probable that they will develop later.

Of special interest is the relation of the condition to acute infections. The father stated that after an attack of pneumonia the molluscous tumours became more numerous, and during the stay of the two girls in hospital for diphtheria the blue spots in the elder girl and the pigment patches in the younger children increased in number and size. In the case of the younger brother, pigment patches which were not seen on examination in November 1910 were noticed after his admission to hospital for diphtheria in March 1911.

It is of historical interest that von Recklinghausen in his original monograph states that no definite cases of neuro-fibromatosis have occurred following on scarlet fever, measles, or diphtheria in children.

Since 1882, when von Recklinghausen's paper was published, the only instances in literature of neuro-fibromatosis following an acute infection have been after typhoid fever (Barot, Fraenkel and Hunt, and Vignolo-Lutati). Probably the approach of puberty superadded to the acute infection will cause a further development of the lesions in the elder girl.

An attempt has been made to connect von Recklinghausen's disease with tuberculosis. Thus Poncet regards tuberculosis as the cause of the ectodermic malformation which is manifested later by symptoms of von Recklinghausen's disease, and cases in which the two conditions are associated have been recorded by Poncet, Mossé, Pic and Rebattu, Pic and Gauthier, and Oulmont and Haller. It may be mentioned that one of von Recklinghausen's

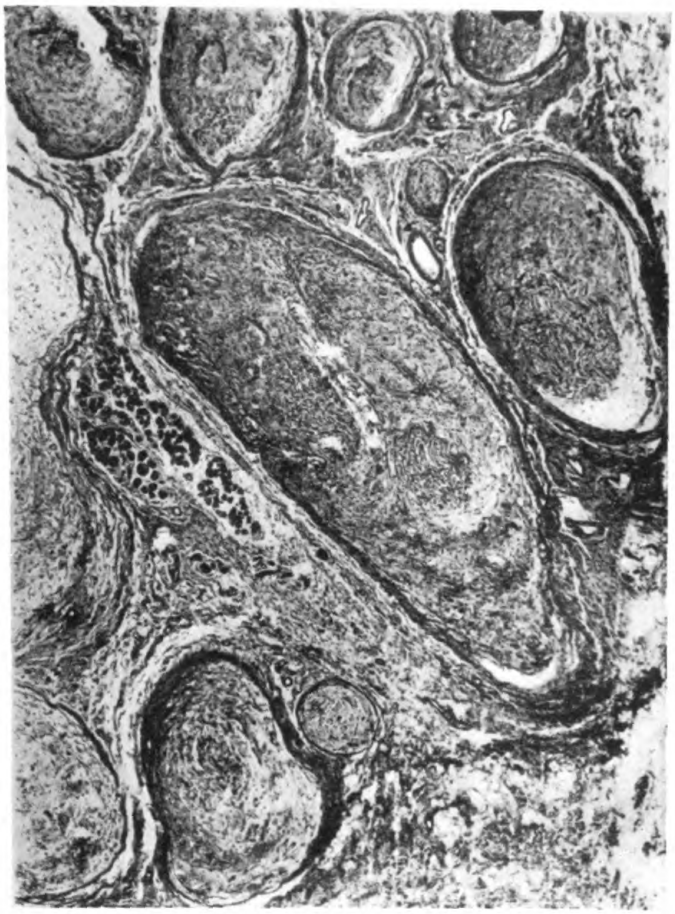

FIG. 6.

FIG. 5.

patients died from hæmoptysis a few hours after admission to hospital, and at the necropsy cavities were found in the lungs together with tuberculosis of the kidneys and intestines.

In the present family, however, no evidence of tuberculosis was found in the father or his children, and von Pirquet's reaction, which was performed on the two girls, was negative.

The doctrine of pluriglandular insufficiency (Muto) was also inapplicable in their case, as there were no mental nor physical signs of disturbance of the glands of internal secretion.

In conclusion, attention should be drawn to the occurrence of the so-called bilious attacks in the father and child. Gastric disturbance has been noted in cases of von Recklinghausen's disease. In several of these no anatomical substratum has been found, but it is of interest that in one of Recklinghausen's own cases miliary fibromata were found post mortem in the wall of the stomach and duodenum. In an incomplete case of von Recklinghausen's disease recorded by Dr Parkes Weber familial vomiting also occurred.

CASES OF HEREDITARY AND FAMILIAL VON RECKLINGHAUSEN'S DISEASE PUBLISHED SINCE 1900.

AUTHOR.	Nature of Case.	Relatives Affected.
1-4. ADRIAN	1. Man, aged 67: multiple neuro-fibromata	Daughter, aged 36; daughter, aged 32; daughter, aged 26—generalised neuro-fibromata and pigmentation; son dead, at 35, had numerous tumours like father.
	2. Man, aged 31; multiple neuro-fibromata of skin and large nerve trunks; plexiform neuroma of sciatic nerve; *café-au-lait* patches; extensive neuro-fibromatosis of nervous system	Father, aged 67; multiple neuro-fibromatosis; paternal grandfather and father had similar neuro-fibromata.
	3. Man, aged 38; multiple neuro-fibromata of skin	Sister, aged 36; multiple neuro-fibromata.
	4. Woman, aged 56; multiple fibromata and racemose neuromata	Mother, died at 83, had numerous skin tumours.
5. BOURCY and LAIGNEL-LAVASTINE	Woman, aged 58; generalised neuro-fibromata, plexiform neuroma of breast	Paternal grandfather had tumour of scalp; father had tumour of forehead, and later, generalised tumours; mother, tumour of left eyebrow.
6. COLE and SHAWAN	Man, aged 40; multiple subcutaneous tumours; plexiform neuroma	Mother had tumour removed from arm; four sisters had multiple small skin tumours.
7. GODET	Girl, aged 8; plexiform neuroma of thorax	Mother has generalised molluscous tumours, and had been operated on for large tumour.
8. GUINON and REUBSAET	Boy, aged 14½; pigmentation of flank and back	Brother, aged 12; punctiform pigment spots and patches on back and limbs; tumour of parotid.
9. HARBITZ	Woman, aged 52; multiple neuro-fibromata and pigment spots	Daughter, aged 26; numerous pigment spots, a few fibromata and blue spots.
10. HINTZ	Man, aged 42; generalised molluscous tumours	Son, aged 5; numerous brownish spots and a few minute tumours on abdomen and back.
11. HIRSCH	Boy, 1 month old; pigment spots	Mother; generalised pigment spots since birth; generalised molluscum since thirteen years.
12. LANGE	Man, aged 49; multiple pigment spots and generalised tumours	Father, many pigment spots; brother, numerous pigment spots; son, numerous pigment spots and tumours, though less than in father.

Author.	Nature of Case.	Relatives Affected.
13. Leclerc	Generalised cutaneous nodules and pigment spots; root paralysis of brachial plexus	Great-great-grandfather, great-grandfather, grandfather, father, and brother; generalised tumours and pigment spots.
14. Moutier	Girl, aged 18; generalised neuro-fibromatosis and plexiform neuroma of back of hand	Mother; generalised neuro-fibromatosis.
15. Moynihan	Man, aged 37; generalised neuro-fibromatosis, pigment patches and false neuroma of vagus	Father and two brothers had patches of pigment and soft excrescences on body.
16. Oulmont and Haller	Man, aged 49; generalised neuro-fibromata and pigment spots	Mother; similar tumours of face and scalp
17. Parsons	Man, aged 39; general neuro-fibromata and pigment spots	Mother and brother similarly affected.
18. Rolleston, J. D., and Macnaughtan	Father, aged 47; pigmentary dermo-fibromatosis	Daughter, aged 13; plexiform neuroma of lip, molluscous tumours, pigment patches. Daughter, aged 5, and son, aged 10—pigment spots only. Paternal grandparents, yellowish tinge of skin. Grandmother, area of pigmentation over sacral region.
19. Sahut	Woman; cutaneous tumour, pigment spots, paraplegia	Son, aged 23; daughter, aged 20; daughter, aged 18—pigment spots, but no tumours.
20. Sutherland	Boy, 5 years; swelling of frontal bone, nodular thickening of cheek, pigmentation over frontal swelling	Mother and maternal grandmother have similar spots of pigment.
21. Trimble	Woman, aged 47; multiple neuro-fibromatosis and pigmentation	Daughter, aged 19; same affection.
22. Vignolo-Lutati	Man, aged 57; dermo-fibromatosis and neuro-fibromatosis	Maternal grandmother and mother similarly affected.

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MONGOLS.

By BERTRAM C. A. LEEPER,
Late Senior Medical Officer, Earlswood Asylum, Redhill.

(Plates 3-4.)

THE word was first applied to this class of cases by Dr Langdon Down, on account of their resemblance to the Mongolian race. There is good reason to suppose that their appearance is due to some phase of fœtal life, and usually some defect can be traced in connection with the intra-uterine life of these cases, either ill-health or fright on the part of the mother, or another noticeable fact is that nearly half or more of these children are the last of a large family, when the procreative powers are at a low ebb. In a fair percentage of cases there is a family history of tuberculosis, and in many a well-marked neurotic taint is obtained. Alcoholism is also said to be a predisposing cause. Many of the characteristic features of these cases are noticeable at birth or very shortly after, and they are consequently often seen both in children's hospitals and elsewhere, besides being found fairly frequently in asylums. They bear a certain resemblance to cretins, and used to go under the names of cretinoids or strumous cretins.

CAUSATION—HEREDITY—

1. Diseases of the nervous system.
2. Alcoholism.
3. Tuberculosis.
4. Syphilis.
5. Consanguinity.
6. Age of parents.

1. *Diseases of Nervous System.*—In 176 cases examined, of which 133 were males, the hereditary taint was well marked. In 6 cases the mother was insane at, or previous to, confinement, and in 3 the father was affected. In 12, brothers or sisters were affected, and in 22 cases the uncles, aunts, or cousins.

2. *Alcoholism.*—In only 3 cases was a definite history of this obtained, all of them occurring in the father. There was, however, in these, in addition, a neurotic tendency in 2, and in the 3rd, tuberculosis.

3. *Tuberculosis.*—In 9 cases the mother was suffering from the disease, and in 4 the father, brothers and sisters in 2 cases, and other relatives in 17 cases. In several of these cases, however

other causes were present in addition, such as neurotic heredity in 6, and alcoholism in 1.

4. *Syphilis.*—In only 2 cases was any evidence obtained, both of them occurring in the father.

5. *Consanguinity.*—In 3 cases the parents were first cousins, and in 4 cases second cousins. Other factors were present, however, as in the case of the first cousins neurotic heredity was present in 2 of the cases and syphilis in the 3rd, while in the case of second cousins, tuberculosis occurred in 2 of them.

6. *Age of Parents.*—It is now generally recognised that the children of fathers below 20 and above 40 years are weaker than those born between these ages, and also those born of mothers over 40 are also weaker. In four cases the age was noticeable, one in which the father was 72 years and the mother 45. In two other cases the mothers were 48 and 52 respectively, and in the last the father was 54 and the mother 27. In all these instances, however, there was also either a neurotic, tubercular, or alcoholic taint present, so that this age disparancy must not be regarded too much.

CAUSATION (EXTRINSIC)—

1. Before birth.
2. During birth.
3. After birth.

1. *Before Birth.*—These causes are mostly due to some mental or physical condition of the mother during pregnancy. Under the mental headings come worry, sudden shock, or fall. While under the physical come the state of general health. In the latter cases often the mother is in a debilitated condition after repeated confinements, or develops tuberculosis.

Mental stress as a sole cause was given in 17 cases, the chief cause of the worry evidently being either overwork or lack of employment.

Falls during pregnancy were returned as a sole cause in 16 cases, but in 32 cases they were also given in conjunction with either neurotic heredity or other taints.

Maternal impressions, so-called and supposed so largely to play an important part, do not appear to have any real influence on the mother's condition, and in only 1 case was the cause

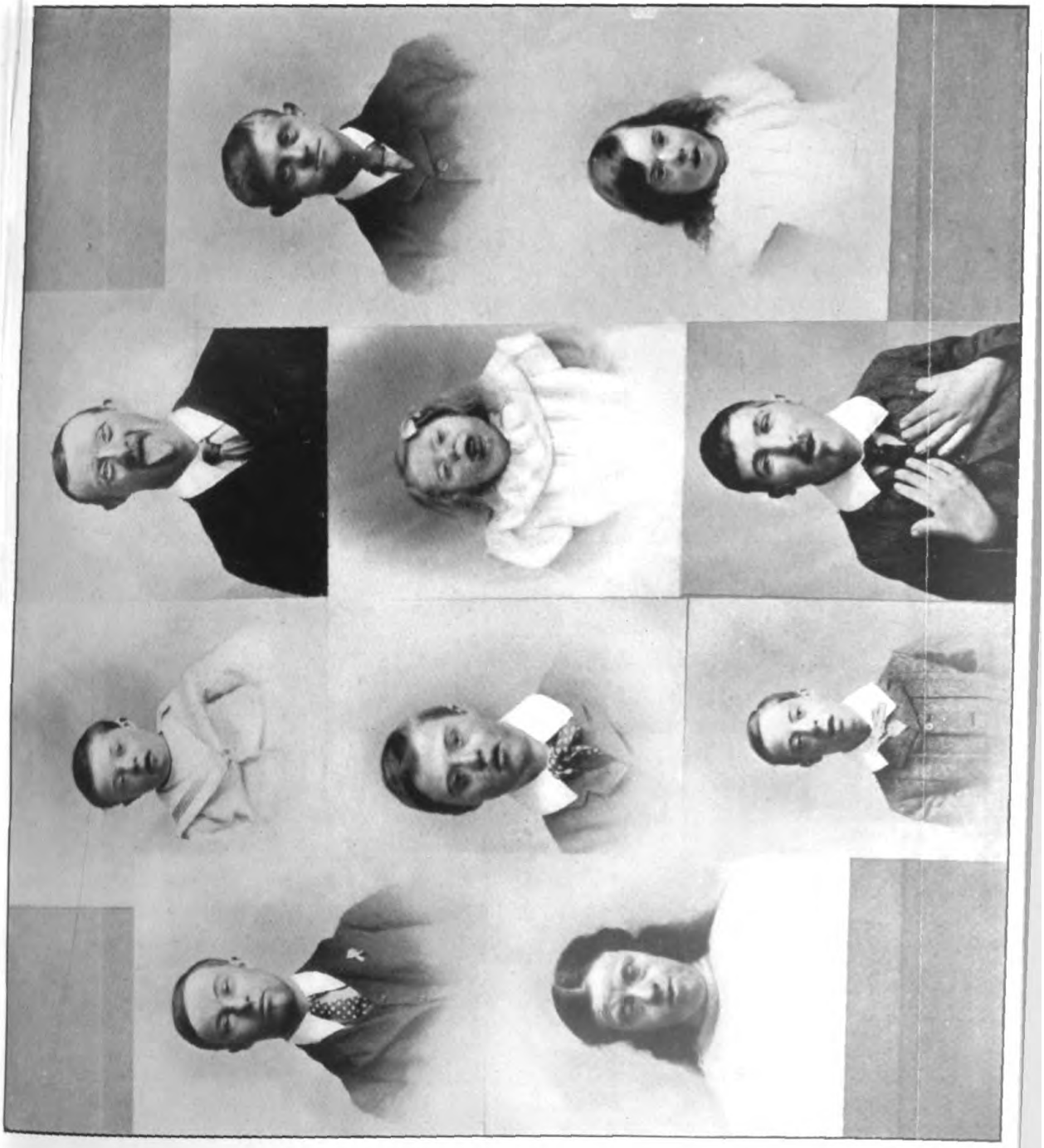

FIG. 1.—Various Types of Mongols.

given (this, however, was also in conjunction with a strong neurotic heredity).

Health of the mother during pregnancy seems to be a very important factor. In no less than 85 cases the child affected was the last of a large family, in many cases often the twentieth, and consequently the health of the mother was in a poor condition. In 10 cases the mother either had tuberculosis at birth of the child, or developed it shortly after. In 4 instances the mother suffered from cardiac disease, and in 1 from Bright's disease.

2. *During Birth.*—It is generally considered that abnormal labour is a frequent cause of mental deficiency. Several writers attribute 17 per cent. of their cases to this alone, 14 per cent. to protracted labour, and 3 per cent. to instrumental. In 8 cases face presentations were given as causes, without any other factor present, no cases came under the heading of protracted labour, and 5 had instrumental delivery. In only 1 case was there an instance of asphyxia neonatorum.

It is obvious from these figures that abnormal labour as a factor of mental deficiency is very much exaggerated. It is a noticeable fact in passing that in several of these cases these abnormal presentations occurred at the birth of the last of large families.

Primogeniture.—It is supposed to be a fact that first-born children are more liable to be mentally defective than others, owing to the increased mental instability of the mother and also that labour is more prolonged. Certainly in this class the opposite seems to be the rule, as only 5 of all the cases investigated were first born (also tuberculosis, insanity, and alcoholism were present in 4 of these, so that this idea of primogeniture does not seem to be feasible). On the other hand, there were 90 cases in which the mental defectiveness appeared in the last born. In 10 cases the fact was noted that this peculiar type of idiot was born fifth or sixth in order, and was followed by a succession of either premature or still births.

Premature birth occurred in 23 cases with no other history, and in 31 complicated with neurosis or tuberculosis.

There is no doubt from a perusal of the above figures that the abnormal factors before birth were responsible for a large percentage of this class of mental defectives, but it is hard to say whether or not these factors were responsible for the peculiar

type. I do not believe personally that it has any more effect on this class than on any of the other imbeciles.

3. *After Birth.*

(1) Traumatic.
(2) Toxic.
(3) Convulsions and epilepsy.
(4) Malnutrition.

(1) *Traumatic.*—A head injury during the early years of a child's existence is often attributed as the cause of the mental defect following, but in these cases of so-called injury a careful inquiry into the nature of the injury received will generally prove the fallaciousness of the statement. Certainly in mongols head injuries do not appear to play any part in determining the onset of the mental defect, and it is extremely doubtful if it has any effect whatever. Of 176 cases in only 1 was the cause given as head injury, and in that case the child was the last of a family of fifteen, so therefore the cause very likely could not come under the list of head injuries, but was most likely the usual one of these cases when the mongol appears at the end of a large family.

(2) *Toxic.*—Generally speaking an infectious fever has little or no effect on this class of patient, though in some cases the parents have returned a report of a fever as a possible starting point of the feeble-mindedness. In only 2 of the series has this been the cause returned; in one of these there was a history of tuberculosis, so that probably it may be safely stated that this so-called cause has no effect at all.

(3) *Convulsions and Epilepsy.*—In this category also convulsions do not seem to have any special frequency, and only in 3 cases do they appear to have been returned as a cause, but in all of these there was also some other taint predominating. So, therefore, I imagine that these causes have no effect whatever on the determination of the final issue.

(4) *Malnutrition.*—Environment, and the general quantity and quality of the food, amount of ventilation, fresh air, and care bestowed on the child do not seem to have any direct bearing on the final result of the mental standing of mongols.

PHYSICAL CONDITION.—The principal characteristics are three in number—the skull, palpebral fissures, and tongue.

The *skull* of a typical mongol is small, rounded, and diminished

in its antero-posterior measurement, that is brachycephalic; it gives the appearance of being deficient behind, and ascends very sharply from the back of the neck.

There appears to be an under-development of the nose and superior maxilla, the inferior maxilla protruding laterally and the face having a pinched appearance.

Ears.—Generally of a characteristic appearance, small and crumpled, the upper part of the pinna overhanging and protruding.

Tongue. — Generally unusually large and fissured, hypertrophied circumvallate papillæ being well marked. Though the organ may not be noticeably enlarged at birth, the other characteristics do not usually show before the third or ninth months, at which time the papillæ begin to enlarge, while the fissuring of the tongue generally begins at the third or fourth year. Tongue sucking is a very common habit in these children, and may be accountable for the cracking and swelling. It is present in nearly all the cases without exception.

Nose.—Short and flattened, with a depressed bridge; nostrils triangular, generally looking forwards instead of downwards. The general deformity is supposed to be due to premature joining of the bones at the base of the brain.

Palate.—Generally narrow and highly arched, in fact it may be said to be an almost rare occurrence for a flattened one to be observed.

Eyes.—(See special note.)

Skin.—Coarse, dry, and often withered looking. Hair is generally dry and scanty, or in the older subjects is downy.

Hands and Feet.—Hands are as a rule square, short, and flabby-looking; in fact they are very much the same as those of cretins; the thumbs and little fingers are often much shorter than normal, a peculiarity often observed being an incurving of the little finger.

Abdomen.—Large and tumid as case in cretinism, and often umbilical.

Genital Organs.—Generally poorly developed, often undersized. In 176 cases only 40 of these were normal, one or other of the testicles not having descended; menstruation is generally delayed or irregular in the females.

Circulatory System.—Generally speaking poor, and congenital

heart defect is quite common, blueness and coldness of the extremities and chilblains is exceedingly common (in fact it is one of the characteristics of this class to be almost always troubled with chilblains, but their cause still remains to be proved).

Congenital heart disease, as has been remarked before, is quite common. Out of 176 cases investigated 35 of these were diagnosed to have some cardiac defect, and 18 were found post mortem to have foramen ovales. Seven of the cases suffered from mitral disease.

Respiratory System.—Nasal catarrh and bronchitis are exceedingly common. A marked feature of this class is their tendency to inflammatory lesions of the respiratory and alimentary tracts, in fact in no class of the feeble minded is the tendency to tuberculosis greater than in this. As they have a lowered resistance to cold, they are very prone to colds, and these when once started, are often the fruitful ground for the starting of the pulmonary conditions which so often carry off such a large percentage of those cases in the asylums.

PATHOLOGY.—A noticeable feature is the premature closure of the bones at the base of the skull, due to imperfect development and not to any primary deformity as in other forms of imbecility.

On removal of the brain the first noticeable feature is the relative diminution in size of the pons, medulla, and cerebellum. This is almost invariably found and is a very common characteristic of this class, and from their small size there is a strong likelihood that there is a lack of development or absence of cell-groups in this area. Another feature is the thinness of the cerebral vessels.

The cerebrum, taken as a whole, is smaller than the average one of the other classes of imbeciles, and there is a marked lack of convolutions compared with those of even average ability. In most of the cases examined post mortem, the grey matter was found to be scanty, and in many tubercular deposits are found at the base. The membranes were in many cases adherent to the vertex, and the pia was found to be cloudy in the region of the circle of Willis.

Pathologically, nothing of any special note has been observed in post-mortem examinations on 50 or more patients of this class, except a tendency to congenital malformations of all kinds,

FIG. 2.—Mongol's Hand.

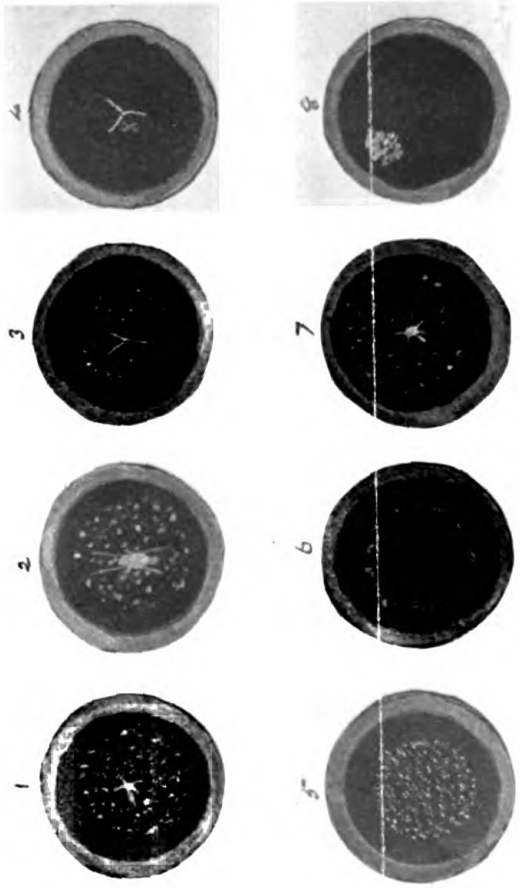

FIG. 4.—Corneal Opacities in Eyes of Mongals.

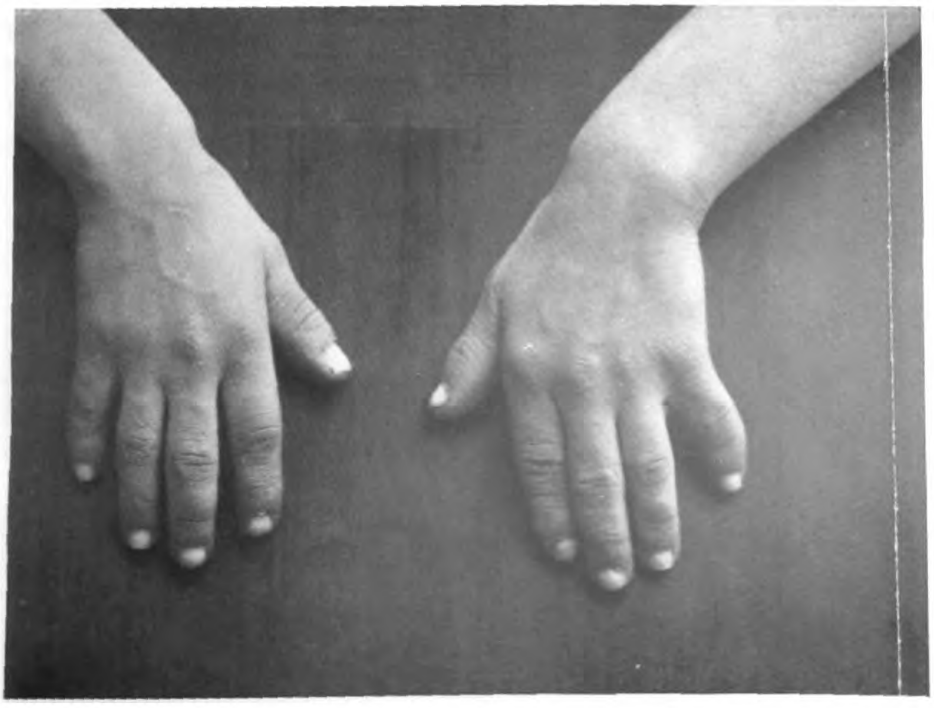

FIG. 3.—Mongol's Hands.

especially the heart; there has been nothing except a general tendency towards what one would expect to find in a cadaver of a premature child, which such a fair percentage of these children belong to.

LONGEVITY.—As a rule mongols die early, the chief cause of death being, as is so often the rule with imbeciles, tuberculosis. Out of 176 cases of 133 males and 43 females, amongst the males the chief causes of death were as follows: 54 of tuberculosis, 5 of congenital heart disease with no signs of tubercle, 8 of lobar pneumonia, 3 of bronchitis, while epilepsy, erysipelas, enteritis, and apoplexy were each accountable for one death.

Amongst the females the chief causes of death were as follows: 24 of tuberculosis, 1 of pneumonia, and 1 of measles.

As has been previously stated, congenital heart disease was found in 18 cases, but only in 5 was it found to be the primary cause of death.

Mongols seldom live to a great age, as either respiratory or cardiac troubles generally cut their lives short. The oldest one at death was 30 years, while two others were 24 at time of death, and five were 23 and 22.

MENTAL AND NERVOUS CHARACTERISTICS.—Mongols are as a rule quiet, good-tempered, and easily amused. They often look intelligent and bright, are full of curiosity, and seem to take in everything around them. A baby mongol is noticed to be full of grimaces, accompanied by a general wrinkling up of the whole skin of the face. A noted feature is inability to sit up or walk at the usual age, and lateness in dentition and talking.

TREATMENT.—May be dismissed in a very few words, as no special treatment seems to be of much avail. The principal things to be borne in mind are plenty of the most nourishing food of all kinds, cod-liver oil and tonics, and especially to guard the patients against cold of all description, as a very small change in the atmospheric conditions soon carries them off with various chest complaints.

EPITOME OF 176 CASES OF MONGOLISM AT EARLSWOOD ASYLUM.

Total number - - -	133 males.	43 females.
Deaths - - -	74 ,,	26 ,,
Discharged - - -	21 ,,	10 ,,
In residence - - -	38 ,,	7 ,,

Table showing the causes of death, also the cases in which tuberculosis was present but was not returned as the cause of death:—

Tuberculosis	54 males.	24 females.
Pneumonia	8 „	1 „
Bronchitis	3 „	...
Measles	...	1 female.
Epilepsy	1 male.	...
Erysipelas	1 „	...
Enteritis	1 „	...
Apoplexy	1 „	...
Morbus cordis	5 „	...

In all of the cases except those of erysipelas, measles, bronchitis, and those under the heading of morbus cordis, there was found tuberculosis in some part of the thorax or viscera.

Table showing patients who were the first children of the family:—

Total	176	133 males.	43 females.
Number of first in family	18	12 „	6 „
Per cent. of family first children	...	14·8 „	29·0 „

Table showing ten or more children in family:—

Total cases	176	133 males.	43 females.
Family of ten or more	26	16 „	10 „
Less than ten	148	115 „	33 „

Table showing incidence of patient being the last child in the family:—

Total cases	176	133 males.	43 females.
Last child	87	63 „	24 „
Per cent.	...	35·7 „	13·6 „

Table showing in which half of the family the patient was situated. Cases intermediate (*i.e.*, three, five) have been included in each half of the family:—

Total cases	176	133 males.	43 females.
In first half	...	36 „	13 „
In second half	...	97 „	30 „

Special Note on Eyes.

In examining the ocular condition of these children one is struck at once by the large number who have some eye defect, either squint, nystagmus, ectropion, or defective vision, but so far there has not been noted any constancy in the ocular condition, and we should like to draw attention to the frequency with which a definite form of cataract is found to be present.

Among our cases, 28 in number, 19 have lens opacities in some form or another, and 18 have a form of cataract of a particular type. This form is seen fully developed in several of the older patients, and is present in what is probably an earlier, that is a less mature, form in some of the others; it is, however, not found under the age of nine years in any of the patients we have examined.

In the least marked varieties the opacities consist of small dots in the cortical portion, deep to the capsule and nearer the anterior than the posterior surface. These dots are best seen by focal illumination, and are so small that they are invisible when seen by transmitted light. In the mature cases the opacities consist of two layers enclosing a clear nucleus, the posterior lamella being concave forwards and corresponding in curve to the posterior surface of the lens. The anterior lamella is much flatter and situated about midway between the centre nucleus and the anterior surface of the lens.

The opacities do not reach to the equator of the lens in any direction. The lamellæ consist of dots numerous, small and discrete.

The posterior pole of the cataract, which appears to correspond with the posterior pole of the lens, is often marked by a star-shaped opacity. The anterior pole of the cataract, which does not correspond with the anterior pole of the lens, often has a similar opacity to mark its position. The more fully developed types might be described as lamellar cataracts, the slighter as congenital "dot" cataract. Very young mongolian idiots, however, do not exhibit this change, and the fact that it seems to be better marked in the older cases suggests that it is a late lamellar.

It remains to be seen whether, in the cases in which slight opacities are found to-day, an increased number of dots appear later, or in other words, whether the cataract is a progressive

as well as a partial one. It is probably a partial and a progressive cataract developed as the result of changes taking place in the lens, after its formation.

The teeth of these patients are defective, but do not show the "honeycombed" condition found so frequently in cases of lamellar cataract, but the hair and skin show characteristic changes.

We are unable to record accurately the visual acuity of these children, and they are not sufficiently controllable to be entrusted with glasses.

The ectropion found in so many cases is due to a superficial contraction of the skin of the lower lid which is rough, glazed, and dry, and the marginal blepharitis probably results in the first instance by infection from the hands, which are frequently used to rub the eyes with, and is kept up by the ectropion, error of refraction, and dirty habits of the patients.

The number of patients examined was 28, responding to 56 eyes—

19	patients have lens changes - - -	67·8 per cent.
18	„ „ typical lens changes - -	64·3 „
35	eyes have cataract changes of some sort -	62·5 „
33	„ typical changes in the lens - -	58·9 „
10	patients have some inflammation of the lids -	35·7 „
7	„ „ squint - - - -	...
4	„ „ choroidal changes - -	...
2	„ „ nystagmus - - -	...

The age of the youngest patient is 5 years and the oldest is 43. The youngest showing cataract is aged 9, and the oldest patient has a well-developed typical cataract of the kind described. Fourteen patients have the interpalpebral fissures directed upwards and outwards.

Abstracts

PHYSIOLOGY.

ON THE RELATION OF THE OPTIC THALAMUS TO RESPIRATION, CIRCULATION, TEMPERATURE, AND THE SPLEEN.

(1) ERNEST SACHS, *Journ. Exp. Med.*, Vol. xiv., No. 4, 1911, p. 408.

As a result of experiments upon ninety-two cats by means of electrical stimulation (bipolar) of the optic thalamus, caudate nucleus and lenticular nucleus, the needles being introduced through the vertex, the author finds that there is no centre in the optic thalamus for respiration, any changes observed being due to reflex effects; neither is the blood pressure governed by any special centre in the thalamus, the changes observed being, as a rule, pressor effects. Changes in the pulse rate do not occur from moderate thalamic excitation, and no centre was found controlling movements of the spleen, all such changes being secondary to blood pressure changes. The globus pallidus, however, has an entirely different effect on the respiration from the thalamus, and hence is connected with a different part of the medullary centre. The nucleus caudatus has no connection with the respiratory or circulatory mechanism, and the optic thalamus, caudate and lenticular nuclei contain no centres which, upon direct stimulation, produce changes in temperature. There is thus no evidence in favour of the existence of special centres in the region of the thalamus controlling any of the above functions.

A. NINIAN BRUCE.

THE PHYSIOLOGICAL ACTION OF EXTRACTS OF THE PINEAL BODY.

(2) H. E. JORDAN and J. A. E. EYSTER, *Amer. Journ. of Physiol.*, Vol. xxix., No. 2, Dec. 1, 1911, p. 115.

THE pineal gland of the sheep was found to contain some substance (or substances) which, upon intravenous injection into certain animals, cause a fall of blood pressure associated with a vasodilatation in the intestines, and also produce a slight degree of improvement in the beat of the isolated cat's heart, and in about 80 per cent. of the cases a transitory diuresis associated with glycosuria. The above effects, however, are relatively slight when compared with that produced by extracts from other internal secreting glands.

A. NINIAN BRUCE.

THE EFFECTS OF ASPHYXIA, HYPERPNŒA, AND SENSORY STIMULATION ON ADRENAL SECRETION. W. B. CANNON and R. G. HOSKINS, *Amer. Journ. of Physiol.*, Vol. xxix., No. 2, Dec. 1, 1911, p. 274.
(3)

THE authors tested the effect of asphyxia, hyperpnœa, and sensory stimulation upon the amount of adrenal secretion. They found that the first and the last conditions produce an increased secretion of the adrenal glands, but that hyperpnœa does not appear to do so. The experiments were conducted upon cats under the influence of urethane. (For further particulars of method, see this *Review*, Sept. 1911, p. 505.) A. NINIAN BRUCE.

PSYCHOLOGY.

SOME PSYCHOLOGICAL PHASES OF MEDICINE. TRIGANT BURROW, *Journ. of Abnorm. Psychol.*, Aug. 1911, Vol. vi., p. 205.
(4)

A SHORT report of a lecture delivered before the Medical and Chirurgical Faculty of Maryland. It consists of a general, but very clear, account of the psychological conceptions and tendencies introduced into medicine by Freud and Jung, which the author considers indispensable for the understanding and adequate handling of the neurose and psychoses. ERNEST JONES.

FREUD'S THEORY OF WIT. A. A. BRILL, *Journ. of Abnorm. Psychol.*, Oct. 1911, Vol. vi., p. 279.
(5)

BRILL gives here a detailed account of Freud's theory of wit, and illustrates it with numerous examples. The subject is dealt with under the headings of: technique of wit; tendencies of wit; the pleasure mechanism and the psychogenesis of wit; the motives of wit, and wit as a social process; the relation of wit to dreams and to the unconscious; wit and the comic sense.
ERNEST JONES.

THE PROBLEM OF "DYING TOGETHER," WITH SPECIAL REFERENCE TO VON KLEIST'S SUICIDE. (Das Problem des "Gemeinsamen Sterbens," namentlich mit Bezug auf den Selbstmord Heinrich von Kleists.) ERNEST JONES, *Zentralbl. f. Psychoanalyse*, Sept. 1911, s. 563.
(6)

A PSYCHOLOGICAL discussion of the sources and meaning of the impulse driving one person to die in company with another. The German poet von Kleist is taken as an example; he had throughout his life impulses of this sort, which were over and over again frustrated, but which were finally gratified.
AUTHOR'S ABSTRACT.

THE RELATIONSHIP BETWEEN DREAMS AND PSYCHO-NEUROTIC SYMPTOMS. ERNEST JONES, *Amer. Journ. of Insanity*, July 1911, p. 57.
(7)

THE clinical and psychological relationships between dreams and neurotic symptoms are far more intimate than is generally recognised. They are here classified under the four headings of general characteristics, clinical relations, psychological structure, and latent content. The importance of dreams for the study of the neuroses and psychoses is insisted upon, for they provide not merely the readiest but probably the only efficient way of comprehending the nature, structure, and meaning of the latter. Dream analysis is not only the chief measure in the investigation of psychoneurotic symptoms, but also the most important step in the treatment of them. Fourteen such analyses are detailed, and the bearing of them on analysis of the patients' symptoms is pointed out. In conclusion the differences between the two sets of phenomena are discussed.

AUTHOR'S ABSTRACT.

THE PSYCHOPATHOLOGY OF EVERYDAY LIFE. ERNEST JONES, *Amer. Journ. of Psychol.*, Oct. 1911, p. 477.
(8)

THIS paper, fifty-one pages long, is a detailed study of certain temporary disturbances of mental functioning in the normal. The following passages are extracted from the concluding summary. The occurrences in question may be divided into motor and sensory. The defects of the former class that enter into consideration are two: (1) the erroneous carrying out of an intended purpose (slips of the tongue and pen, erroneously carried out actions), and (2) the carrying out of an unintended purpose (symptomatic acts). The defects of the latter class are also two: (1) simple failure of perception (forgetting, not seeing), and (2) erroneous perception (false recollection, false visual perception).

Common to all forms is the fact that the subject, and most observers, either give an obviously inadequate explanation of the particular occurrence, such as that it was due to "inattention," "absent-mindedness," "chance," and so on, or frankly maintain that it has no explanation at all. On the contrary, psycho-analysis shows that there is not only a definite psychical cause for the occurrence, but this has always a meaning and may strictly be called a motive. This motive is some secondary tendency or train of thought, of which the subject is not aware at the time. Usually it is fore-conscious, but in many cases it is unconscious and is then correspondingly more difficult to reveal. The motive is repressed by the subject, the repression being a defence mechanism that

subserves the function of keeping from consciousness undesirable or painful thoughts. The motive may be one of two kinds: either it is a counter-impulse directed immediately against the mental operation that is intended, or it is an impulse directed against some mental tendency that stands in associative connection with this operation; that is to say, the association between the two mental processes may be either intrinsic or extrinsic. As a result of the repression any direct manifestation of the tendency is inhibited, and it can come to expression only as a parasitic process engrafted on another conscious one. The disturbance thus caused constitutes a temporary failure or error of normal mental functioning.

This error can psychologically be compared with a psycho-neurotic symptom, the mechanisms by which the two are brought about are almost the same, and the psychical material that is the source of them is closely similar in the two cases. It is maintained that appreciation of the significance of these everyday errors is important for both the practice and theory of psychology; this is especially so in the contribution it furnishes to the problem of psychical determinism, and in the understanding it gives of the deeper, non-conscious motives of conduct.

The paper is illustrated by numerous examples; it is based on Freud's book of the same title.

AUTHOR'S ABSTRACT.

THE PATHOLOGY OF MORBID ANXIETY. ERNEST JONES, (9) *Journ. Abnorm. Psychol.*, June-July 1911, p. 81.

NORMAL fear and morbid anxiety arise from the same primitive fear instinct. The clinical distinctions between the two are that in the latter the physical manifestations are more prominent, and the intensity of the emotion is disproportionate to the occasion of its occurrence. An account is given of the mental and physical symptoms and the various clinical forms they may take; they are characterised by an admixture of over-excitation and inhibition phenomena. The different views that have been held as to the pathology of the condition can be grouped into two, according as the primary disturbance is conceived to reside in the nervous system or in the periphery. It essentially consists in an over-excitation of the nervous centres concerned with the regulation of the visceral organs; they may theoretically result from either an undue excitability of these centres or an undue excitation from the periphery. Freud's view is expounded in which the latter position is taken; on the basis of clinical observation he infers that the excessive excitation is of sexual

origin, though other forms may play a secondary part in addition. The condition is never to be observed except under circumstances where the sexual tension is greater than the available relief. The anxiety is a reaction against the repressed desire. The evidence for this conclusion is discussed, and the mental and physical symptoms explained on this basis. In conclusion an analysis is detailed of a typical case of anxiety state.

AUTHOR'S ABSTRACT.

PATHOLOGY.

(10) **FAT REMOVAL IN PERIPHERAL NERVE DEGENERATED AFTER SECTION.** W. KELMAN MACDONALD, *Journ. Path. and Bacteriol.*, Vol. 16, No. 1, 1911, p. 71.

THE following observations were made while investigating the changes in the sensory nerve endings in muscle after section of the nerve trunk.

The experiments were made on rabbits by removing a centimetre of the sciatic nerve on one side. The animals were allowed to live afterwards for a varying number of days up to fifteen. Preparations were then made of the nerve trunk below the point of section, and treated with a modification of Marchi's method.

Up to eleven days after section there was no fat found in the septa between the individual nerve bundles. Eleven days after section fat was found in the septa within cells in close relation to vessels. Fifteen days after section the amount of fat as indicated by the Marchi method has undergone considerable diminution. There was shrinkage in the nerve bundles and increase in the connective tissue between the bundles. At this period great numbers of phagocytic cells loaded with fat were found.

The author considers them to be the same type of cell as the so-called "compound granular corpuscles" of the central nervous system. He does not venture to discuss further their nature.

JAMES MILLER.

CLINICAL NEUROLOGY.

(11) **ON THE CROSSED PLANTAR REFLEX, WITH SPECIAL REFERENCE TO ITS CLINICAL SIGNIFICANCE. (Ueber den gekreuzten Zehenreflex, im besondern ueber seine klinische Bedeutung.)** OTTO MAAS, *Deut. Med. Wchnsch.*, No. 48, 1911.

THE crossed plantar reflex is present when, on stimulation of the sole of one foot, the great toe on the opposite side is moved

in either the plantar or the dorsal direction. In the great majority of normal individuals this reflex is absent, but in a few cases in which there is general excitability of all the reflexes a bilateral crossed reflex may be present; this reflex is always plantar flexion. The author considers that a unilateral crossed reflex is a sure indication of an organic lesion in the central nervous system, although Klippel and Weil describe it as occurring in certain cases of advancing tuberculosis. The chief clinical interest of this sign is that it is present in some cases in which the ordinary Babinski sign is absent. Out of 13 cases of hemiplegia in which no Babinski sign could be elicited, in 9 was there crossed plantar flexion, and in 4 crossed plantar extension. In some cases a light scratch would produce crossed flexion, a heavier scratch crossed extension. In no case did stimulation of the sole of the paralysed foot give a true crossed reflex on the sound side, although in some cases there was a doubtful response.

W. BOYD.

THE ETIOLOGY OF THE OCCUPATION NEUROSES AND NEURITIDES. (12) PAUL, *Journ. Nerv. and Ment. Dis.*, Aug. 1911, p. 449.

THE author seems unwilling to admit the probability that there may be more than one pathological entity responsible for these conditions, and upholds the hypothesis of a peripheral rather than a central pathology as affording a satisfactory explanation of them.

He believes that "the impacts, compressions, tensions, and stresses of excessive physiological functioning, acting on muscle tissue, or on sensory and motor nerve structures which run in the soft tissues and terminate in muscle, tendon, joints, or fasciæ, bring about neurolytic or myolitic changes responsible for the occupation neuroses and so-called occupation neuritis and occupation pain." He maintains that experiments on muscle-nerve preparations show that graded pressures on the nerve may produce similar symptoms to those that occur in occupation neuroses, and, considering the physiological variation in "subfascial" muscular tension that occurs in severe muscular contraction, and the readiness with which the nerve-muscle connections may be fatigued, he believes it reasonable to conceive that local injury to nerves in muscles and joints may result as the mechanical effect of normal functioning indefinitely repeated.

He gives some statistics to show that all movements of the muscles affected are interfered with in any particular form of occupation neurosis.

P. W. SAUNDERS.

IMPERATIVE PAINS. FRY, *Journ. Nerv. and Ment. Dis.*, Nov. 1911, (13) p. 671.

BY "imperative pains" the author means the chronic, insistent pains which occur in some cases of psychasthenia, and seem to partake of the nature of an obsession. He cites five cases as examples. P. W. SAUNDERS.

MENINGEAL SYNDROME FOLLOWING HERPES ZOSTER.
(14) **(Syndrome méningitique généralisée consécutif à un zona thoracique.)** ESBACH, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1911, xxxii., p. 505.

A SOLDIER, aged 30, five days after the appearance of zoster in the ninth right intercostal space, developed signs of meningitis. Lumbar puncture gave issue to a clear fluid under hypertension, containing numerous lymphocytes. Vincent's precipito-reaction was negative. The symptoms partially subsided, but had not entirely disappeared five months after the onset.
J. D. ROLLESTON.

PRODROMAL MENINGITIS IN MUMPS. (Un cas de méningite
(15) **ourlienne ayant précédé les oreillons.)** A. CAYREL, *Paris méd.*, 1911-12, 1, p. 113.

THE patient was a young soldier in whom symptoms suggestive of meningococcic meningitis developed three days before the appearance of the parotid tumour. The cerebro-spinal fluid escaped under normal tension, was clear until it was shaken when it showed some flakes, and was quite sterile. On centrifugalisation there was marked lymphocytosis. Complete recovery resulted. J. D. ROLLESTON.

MENINGOCOCCIC INFECTION RESEMBLING TYPHOID FEVER.
(16) **(Typhôse méningococcique.)** A. PISSAVY, C. RICHET FILS, and J. PIGNOT, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1911, xxxii., p. 576.

A MAN, aged 24, was admitted to hospital with headache, dry tongue, pea-soup stools, bronchitis, and enlarged liver and spleen. A few days later two rose spots appeared on the abdomen. The diagnosis of typhoid fever was made in spite of the irregular temperature, the presence of labial herpes, and a negative Widal's reaction. Five days after admission signs of meningitis developed. Lumbar puncture gave issue to a turbid fluid in which meningococci were obtained in direct smears and in cultures. Some improvement followed repeated injections of antimeningococcic

serum, but death took place preceded by broncho-pneumonia and reappearance of meningeal symptoms. At the necropsy no typhoid lesions were found, but the meninges showed the presence of both tuberculous and of meningococcic cerebro-spinal meningitis (*cf. Review*, 1910, viii., pp. 432 and 500). The typhoid state probably corresponded to a meningococcic septicæmia (*ibid.*, p. 703). J. D. ROLLESTON.

SUDDEN AMAUROSIS AND MENINGEAL SYMPTOMS AT THE ONSET OF TYPHOID FEVER. CEREBRO-SPINAL HYPERTENSION AND LYMPHOCYTOSIS. MILD COURSE AFTER LUMBAR PUNCTURE. (Amaurose subite et état méningé au debut d'une fièvre typhoide. Hypertension et lymphocytose céphalo-rachidienne. Evolution bénigne après la ponction lumbaire.) F. WIDAL et A. WEILL. *Bull. et mém. de la Soc. méd. des Hôp. de Paris*, 1911, xxxii. p. 196.

(17)

THE patient was a man, aged 25. The cerebro-spinal fluid was clear and sterile, and showed an almost pure lymphocytosis. Wassermann's test was negative. The fundi were normal. The amaurosis is attributed to cerebro-spinal hypertension.

J. D. ROLLESTON.

ENCEPHALITIS FROM TYPHOID ENDARTERITIS. RIGHT HEMIPLEGIA WITH MOTOR APHASIA. (Encephalite da endoarterite tifica. Emiplegia destra con afasia motoria.) F. T. MAUGERI, *Giorn. internaz. d. Sci. med.*, 1911, xxxiii., p. 987.

(18)

A CASE of spastic hemiplegia in a woman aged 24. Typhoid fever had occurred five months previously, and hemiplegia had developed during a comatose state on the eighth day of disease.

J. D. ROLLESTON.

A CASE OF CEREBRAL MALARIA: RECOVERY AFTER FORTY-EIGHT HOURS' UNCONSCIOUSNESS. W. THOROLD QUAIFE, *Lancet*, Jan. 6, 1912.

(19)

BOY, aged 18, employed on a small sailing vessel, suddenly fell down with violent convulsions and deep unconsciousness. The corneal reflex was absent, pupils dilated, but reacted slowly to light. Whole muscular system completely relaxed. Breathing rapid and stertorous. Fresh films of blood showed a few half-grown pigmented malignant tertian malaria parasites. Complete recovery without any complications took place, after large doses of quinine bichloride by rectum. A NINIAN BRUCE.

A SPECIAL FORM OF SEROUS MENINGITIS. (Ueber eine besondere Form der Encephalopathia Saturnina [Meningitis serosa].) (20) OTTO MAAS, *Monatschr. f. Psychiat. u. Neurol.*, Bd. xxx., H. 3, s. 207.

THE author details six cases which came under his own observation in which symptoms of hydrocephalus were present, and in which lead poisoning was either established or suspected as a cause. Three of the six cases came to post-mortem examination. In one of these there was found marked distention of the lateral ventricles, also of the third ventricle, which formed a cyst-like projection at the base of the brain. There was, in addition, distention of the fourth ventricle and the aquaductus Sylvii. Microscopically there was found: slight thickening of the pia mater, thickening generally of the vessels of the brain and spinal cord, pigmentary changes in the ganglion cells, marked proliferation of the glia with formation of "amœboid glia cells" especially in the white substance of the cortex. The author hesitates to put down all these changes to the lead poisoning. He also considers it doubtful how far the changes are due to the hydrocephalus itself. In another case there was found: atrophy of the right hemisphere, an area of encephalitis in the right frontal lobe, and bilateral optic nerve atrophy. No microscopic examination was performed in this case. In a third case there was found post mortem: a cystic tumour of the right hemisphere, dura metastases, hydrocephalus.

The author considers that his cases show that meningitis serosa can be produced by lead poisoning. He comes to no decided conclusion as to the cause of the increase of fluid in the interior of the brain. He considers it probable that it is due to an inflammatory process in the pia (a condition proved to be frequently associated with lead poisoning and present in the one case which the author examined histologically) leading to interference with the draining away of the cerebro-spinal fluid.

JAMES MILLER.

A CASE OF CEREBRO-SPINAL MENINGITIS. C. C. SYNDER and (21) W. R. TYNDALE, *Journ. Amer. Med. Ass.*, Vol. lvii., No. 3, July 15, 1911, p. 213.

THE report of a case of meningitis in a boy aged 12 who was not seen by a medical practitioner until the third day of illness. The patient was then unconscious, with marked retraction of head, cyanotic, pupils unequal, pulse 80 and very irregular and weak, temperature subnormal, positive Kernig, petechial hæmorrhage, increased reflexes and hyperæsthesia over entire body. Lumbar puncture was performed, and the spinal fluid was viscid, cloudy and tinged with blood, and contained the meningo-coccus. 30 c.c.

of antimeningo-coccic serum was injected into the spinal canal. Twelve hours later patient regained consciousness. On the three subsequent days 30 c.c. of serum were injected after withdrawal of the same amount of spinal fluid. The condition showed so marked improvement that after four days the injections were discontinued, bromide only being given. Patient was discharged cured in eighteen days, and three months later was still well.

WINIFRED MUIRHEAD.

ANIMAL EXPERIMENTATION IN RELATION TO EPIDEMIC CEREBRO-SPINAL MENINGITIS. CHARLES HUNTER DUNN, *Journ. of the Amer. Med. Ass.*, Vol. lvii., No. 4, July 22, 1911, p. 259.

(22)

IN this paper the author deals with the history of cerebro-spinal meningitis in recent years, and the overwhelming benefit which has resulted from the use of antimeningitis serum. Weichselbaum discovered the meningo-coccus or diplococcus intercellularis in 1887, but it was the American scientists who perfected the manufacture of an antimeningo-coccus serum. Until treatment with serum was practised—which is since 1907—the mortality of this scourge was extremely high, 70 to 90 per cent., and in those who recovered, permanent injury often existed. Doctors Flexner and Jobling, after experimenting with various smaller animals, eventually found that by inoculating cultures into the meninges of monkeys they were able to produce a condition of meningitis somewhat resembling the disease in man. This result proved to be the basis of experimentation with an antiserum in these animals, and they proved that an antiserum did alleviate and cure the condition in monkeys. The serum acted both directly and indirectly on the meningo-coccus, destroying it, and the less diluted the serum the stronger was its action; thus the serum was introduced into the spinal canal of the infected animals in order to dilute it as little as possible, and it was found of itself to have no harmful effect on the tissues of the nervous system. The antimeningitis serum acts in three ways—directly on the meningo-coccus, destroying it and inhibiting its growth, increasing phagocytosis and producing more rapid intracellular absorption of the coccus, and at the same time it neutralises the soluble toxic products both of the growth and disintegration of the coccus. The horse was immunised against the meningo-coccus in the manufacture of a large quantity of antiserum, and was found to be a suitable animal, reacting well to inoculation and producing a strong antiserum. The serum was first used in Ohio in 1907, and proved that the injection of the serum into the spinal canal was not in itself harmful, and that it was

most beneficial in its action, the mortality dropping to a third, the disease became less severe and protracted, and the serious permanent effects less numerous. Dr Robb's experience in the Belfast epidemic of 1907 was similar, the mortality in serum-treated cases being 26 per cent. compared with 85 per cent. in non-serum treated cases. Dr Dunn deals fully with mortality statistics quoted at all ages and various epidemics, and the effect on these of the serum treatment. Briefly, extremes of mortality which occur in non-serum treated cases vary from 68 to 91 per cent., and in children under a year 90 to 100 per cent. In 712 definitely diagnosed bacteriological cases of cerebro-spinal meningitis treated with serum the total mortality was 31·4 per cent. In children up to two years 42·3 per cent.; from two to fifteen years 23·4 per cent.; from the fifteenth year onwards 30 per cent. The mortality in these cases for the period of treatment with serum was the following: serum injection during the first three days of illness, deaths 25·3 per cent.; injections fourth to seventh day, 27·3 per cent.; injection later than the seventh day, 42·1 per cent. In this same analysis seventeen young children from two weeks to two years, in whom the mortality is extremely high, were treated in the first period with serum and only one died; similarly in adults twenty-four cases were treated in the first period, four only died, *i.e.*, a mortality of 17 per cent. (compared with 50 per cent.). The tremendous advantage of early treatment is thus indicated. The symptoms of the disease are also markedly affected by serum treatment, almost immediate alleviation, and the duration of the disease is diminished from over a month to less than fourteen days; also the disease tends to terminate more rapidly by crisis. The cerebro-spinal fluid becomes clear, leucocytes diminish both in it and in the blood stream, and lastly it is much more rare to have permanent sequelæ.

WINIFRED MUIRHEAD.

A CASE OF MOLLUSCUM FIBROSUM. L. B. SCOTT, *Ind. Med. Gaz.*, **(23) 1911, xxvi., p. 428.**

THE patient was an Indian native woman, aged 45, with growths on the scalp, face, chest, and arms. The mother, three sisters, one brother, and a son were all affected, but in them the disease was confined to the scalp and face only. Operation refused. No biopsy.

J. D. ROLLESTON.

CASES OF FIBROMA MOLLUSCUM. (Removal of a tumour in one weighing 16 lbs. 10 oz. with recovery.) C. R. CHETTI, *Ind. Med. Gaz.*, 1911, xxvi., p. 427.

(24)

A RECORD of two cases in Burmese natives, one a woman aged 38, from whom the tumour was removed, and the other a man aged 46, in whom the tumours though numerous were not large enough to cause any inconvenience. No microscopical examination was made in either case. J. D. ROLLESTON.

AN INCOMPLETE CASE OF RECKLINGHAUSEN'S DISEASE IN AN INSANE PATIENT. (Un cas fruste de maladie de Recklinghausen chez une alienée.) PIERRET and SERGEANT, *L'Echo méd. du Nord*, 1911, xv., p. 592.

(25)

A WOMAN, aged 40, a microcephalic idiot, showed numerous pigmentary nævi and a few vascular nævi distributed over the whole cutaneous surface. Some of the lesions were pedunculated and resembled molluscum pendulum. There were no subcutaneous tumours. One brother, still alive, also a microcephalic idiot, had extensive zones of yellowish pigmentation on the shoulders and molluscum on the back. Another brother who had died in an idiot asylum some years previously had had tumours of the nerve trunks and a typical royal tumour.

J. D. ROLLESTON.

ACUTE NEURO-FIBROMATOSIS. (Neuro-fibromatose aigue tegumentaire. Etude clinique et anatomo-pathologique.) J. SABRUÉS and J. DUBOURG, *Gaz. hebd. des Sci. méd. de Bordeaux*, 1911, xxxii., p. 591.

(26)

A MAN, aged 28, who had had a fibroma removed from the trunk at the age of 23, developed in the course of a few days hundreds of cutaneous neuro-fibromata. The eruption was accompanied by headache, fever, bronchitis, asthenia, hyperleucocytosis, and micropolyadenopathy. The cerebro-spinal fluid showed hypertension, but no marked lymphocytosis, and a negative Wassermann. Tuberculin tests negative. Blood pressure normal. Microscopical examination showed the tumours to consist of fibrous tissue containing degenerated nerve fibres.

A sudden onset of neuro-fibromatosis is rare. Allusion is made to a fatal case published by Pierre Marie and Couve laire (*Nouv. Icon. Salpêt.*, 1900, xiii., p. 26), in an alcoholic man aged 52, whose skin became covered with tumours in the course of a fortnight. J. D. ROLLESTON.

A CASE OF PYLORIC STENOSIS CAUSED BY NEURO-
(27) **FIBROMATOSIS. (Über einen durch Neuro-fibromatose bedingten Fall von Pylorusstenose.)** R. LERICHE, *Deut. Ztschr. f. Chir.*, 1911, cxi., p. 314.

THE occurrence of small fibromata in the alimentary canal is not uncommon in neuro-fibromatosis, as in the case recently recorded by Hartmann. (*v. Review*, 1911, ix., p. 126.) The tumours rarely, however, cause symptoms during life.

The present case is that of a man, aged 45, who developed tuberculosis at eighteen. In June 1909 he became thin and cachectic, and began to suffer from pain in the stomach and vomiting. Like his father he was the subject of generalised neuro-fibromatosis, and one of his daughters had the body covered with pigment spots. On laparotomy, 27th December 1909, one tumour was removed from the pylorus and duodenum, and another from the neighbourhood of the duodeno-jejunal junction. Histologically, the tumours were fibromata without nerve elements, but the pyloric tumour was undergoing sarcomatous degeneration. Death took place from purulent pleurisy on 11th January 1910. The necropsy revealed some intestinal fibromata that had been overlooked at the operation. J. D. ROLLESTON.

SPONDYLOSE RHIZOMÉLIQUE MUCH IMPROVED BY FIBRO-
(28) **LYSIN. (Un cas de spondylose rhizomélique très amélioré par la fibrolysine.)** E. RIST, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1911, xxxii., p. 461.

A MAN, aged 23, was admitted to hospital for pulmonary tuberculosis. He had contracted gonorrhœa a year previously, and a urethral discharge persisted containing gonococci. The whole cervical and dorsal column was painful and ankylosed with well-marked cervico-dorsal kyphosis and corresponding lumbar lordosis. Movements of the left shoulder were painful, those of the right less so. The upper thorax was motionless, respiration being entirely diaphragmatic. This condition of spondylose rhizomélique had been in existence two months when fibrolysin treatment was started. Twenty-four subcutaneous injections were given between July and November. After the first few injections there was decided improvement, and on his discharge from hospital he was able to resume work.

The success of fibrolysin in his case shows that the condition was not due primarily to a bony softening and rarefying osteitis, but rather to a hyperplasia of the periarticular fibrous tissue. Further, the X-rays showed no diminution in opacity of the bodies of the vertebræ. J. D. ROLLESTON.

EPIDEMIC POLIOMYELITIS OCCURRING AT STOWMARKET, (29) SUFFOLK. S. HILLIER, *Brit. Med. Journ.*, Dec. 30, 1911, p. 1690.

TWENTY-FIVE cases occurred in this epidemic, five being in adults and three in infants under two years of age. There were six deaths. The epidemic ceased quite suddenly after the following measures had been put into force: compulsory notification, isolation, destruction of flies, watering the streets with antiseptics, all contacts instructed to spray nose and throat with permanganate solution, and householders warned against accumulation of refuse. The only measure, however, thoroughly and regularly performed was watering the streets with antiseptics, and thus rendering the dust innocuous. It would thus appear that dust infection was an important factor in spreading the disease.

A. NINIAN BRUCE.

A RECORD OF SOME CASES OF EPIDEMIC PARALYSIS OC-(30) CURRING IN HAMPSHIRE. G. FULLER ENGLAND, *Brit. Med. Journ.*, Dec. 30, 1911, p. 1691.

THE author describes very fully eight cases of acute disease affecting the spinal cord or the meninges, or both. Two resembled acute anterior poliomyelitis, although presenting some unusual features, while the rest showed symptoms which corresponded almost exactly to cerebro-spinal meningitis.

A. NINIAN BRUCE.

EPIDEMIC ANTERIOR POLIOMYELITIS IN SOUTH DERBY-(31) SHIRE. JOHN HAY MOIR, *Brit. Med. Journ.*, Dec. 30, 1911, p. 1693.

TWENTY-FIVE cases occurred in this epidemic, five being of the encephaloid type, all of which proved fatal. The total mortality was 32 per cent. The ages ranged from ten months to eight years, and all occurred in a district of about three square miles. There were two periods of greatest incidence, the first early in June and the second early in August. The distribution of the cases was very scattered, and there was practically no communication between the houses affected. Dusty roads were not considered of any etiological moment, but exposure to the sun or unaccustomed excessive heat was regarded as an important etiological factor, since some of the cases bore a great resemblance to sunstroke.

A. NINIAN BRUCE.

A LOCAL EPIDEMIC OF ACUTE POLIOMYELITIS. D. W. CURRIE
(32) and E. BRAMWELL, *Edin. Med. Journ.*, Oct. 1911, p. 315.

THE epidemic referred to is the Harvieston epidemic (*vide* this *Review*, Jan. 1911, p. 10). The authors conclude that acute poliomyelitis was more prevalent than usual in various parts of England and Scotland during the autumn of 1910, and the question of a possible relationship to meningococcal meningitis is referred to. A. NINIAN BRUCE.

A CASE OF DOUBLE THIRD NERVE PALSY DUE TO ACUTE
(33) **POLIOMYELITIS.** A. H. PAYAN DAWNAY, *Proc. Roy. Soc. Med.* (Sect. of Dis. of Child.), Vol. v., No. 1, Nov. 1911, p. 13.

CASE of a boy, aged 7; had had bad attack of measles with broncho-pneumonia, but not diphtheria. The only sign of paralysis consisted of marked ptosis on both sides, elevation of lids only by action of the frontalis, no power of elevation or depression of the globes, fair lateral movements, with complaint of occasional diplopia to the right. Pupils equal and active directly and indirectly, no paralysis of accommodation. (See also this *Review*, May 1911, p. 270.) A. NINIAN BRUCE.

AN ADDRESS ON CERTAIN OPERATIVE PROCEDURES IN
4) **THE PARALYSIS OF CHILDREN. With special reference to Poliomyelitis.** ROBERT JONES, *Brit. Med. Journ.*, Dec. 9, 1911, p. 1520.

THIS paper ought to be read in the original. The author discusses the operative treatment of poliomyelitis in the order in which paralytic deformities should be attacked, viz., (1) Reposition, manipulation, supports; (2) division of contractions; (3) removal of skin areas; (4) tendon transplantation; (5) arthrodesis; and (6) transplantation of nerves. In very young children gradual correction of deformity ought always to be preferred, using the simplest instrument to keep the limb in good position and preventing erroneous deflection of the body weight during walking. The child should be allowed to grow and develop until it is about five before transplanting its tendons, and ten before doing an arthrodesis. Particular emphasis is laid upon the prevention of weak muscular groups from being stretched and the importance of attending to the posture of the child during his convalescence from the acute onset. Operation should never be attempted until

the surgeon has fully satisfied himself that it is not possible to restore the apparently paralysed muscle by other means. No matter how many months or years it may apparently have been paralysed, it should be kept for a prolonged period in a position of relaxation, the slightest stretching of a muscle on the point of recovery being quite sufficient to disable it again and undo the work of months. A. NINIAN BRUCE.

THE SPREAD OF BACTERIAL INFECTIONS FROM THE NASAL
(35) **AND NASO-PHARYNGEAL CAVITIES BY WAY OF LYMPHATIC CHANNELS.** A. LOGAN TURNER, *Edin. Med. Journ.*, Nov. 1911, p. 409.

IN the great majority of cases of chronic nasal suppuration in which an intracranial complication has developed, evidence has been found demonstrating the spread of the infection through disease of the contiguous bony walls. In cases of meningeal infection, however, in which no chronic nasal disease has existed, and in which destruction of the bony wall has therefore not been possible, some other path of infection must be looked for. This may be, and in some cases has been, definitely shown to be by venous channels. The part which has been assigned to lymphatic vessels in carrying infection from the upper air passages to the cerebro-spinal cavities is largely speculative and definite pathological proof is still wanting. Many writers have given to lymphatic channels between the nasal and accessory nasal cavities on the one hand, and the central nervous system on the other, a position which is hardly justified by anatomical facts as at present known. And even granting that such a well-developed network of inter-communication may be present, the lymph-flow through it will take a direction from the brain towards the nasal cavities and cervical lymphatic glands, so that the danger of meningeal infection by such an avenue from organisms in the nasal cavities will be diminished, and further investigation is still required to prove that infection may take place from the naso-pharynx to the brain by lymphatic channels.

A. NINIAN BRUCE.

THE RELATION OF NASAL OBSTRUCTION TO ARTICULAT-
(36) **ORY CAPACITY.** ERNEST JONES, *Brit. Journ. Children's Diseases*, June 1911, p. 241.

THIS study was undertaken to determine the importance of nasal obstruction in the causation of general articulatory defects, apart from the specific consequence of rhinolalia. The conclusions reached are as follows:—

(1) In average school children (469 cases, 106,500 tests) the articulatory capacity for consonants was found to vary with the degree of nasal obstruction. The dependence of the capacity on this factor is not very close, but is much more decided with boys than with girls. The incidence of nasal obstruction being about the same in the two sexes, it would seem that a given degree of it produces, through partial deafness or in some other way, a more harmful effect on the articulatory capacity of boys than on that of girls. This is in harmony with the author's hypothesis, previously put forward, that hearing is more essential in the acquirement of speech with boys than with girls, the latter making use of a second channel of education, lip-reading, which is shut to boys.

(2) In children with gross articulatory defect or dyslalia (231 cases, 52,000 tests) no correlation whatever was found between the extent of this defect and the degree of nasal obstruction present. Investigation of a larger series might reveal a slight correlation, but nasal obstruction is evidently not an important cause of dyslalia in general, and any action it may have is readily obscured by that of more important factors.

AUTHOR'S ABSTRACT.

THREE CASES OF BRAIN ABSCESSES. FRANK and HASSIN, *Med.* (37) *Rec.*, Oct. 28, 1911, p. 873.

Two left temporal abscesses and one right cerebellar are reported.

P. W. SAUNDERS.

DISTORTIONS OF THE VISUAL FIELDS IN CASES OF BRAIN TUMOUR: STATISTICAL STUDIES. (First Paper.)
(38) HARVEY CUSHING and GEORGE HEUER, *Johns Hopkins Hosp. Bull.*, June 1911, p. 190.

THE importance of making accurate perimetric observations in the study of brain tumour is emphasised. In a series of 200 cases of brain tumour, the authors were able to secure reliable perimetric charts in 123. These have shown: (1) Normal fields in twenty-seven cases; (2) simple colour interlacing or inversion (dyschromatopsia) with more or less constriction, but without other field distortion, in fifty-three cases; and (3) hemianopsia, or a tendency toward this defect in forty-two cases.

A. NINIAN BRUCE.

THE PARIETAL SYNDROME. (La syndrome pariétale.) L. (39) BIANCHI, *Annali di Nevrol.*, Ann. xxviii., f. 3 and 4, 1910, and *Arch. ital. de Biol.*, Tome lv., f. ii., 1911, p. 188.

THE author points out the difficulty of determining the function of such regions of the brain as the parietal, frontal and temporal areas, since their removal is not followed by motor paralysis, and the symptoms following lesions of these areas in man cannot be studied experimentally in the lower animals.

The parietal region, as referred to in the present paper, is regarded as bounded anteriorly, and superiorly by the intraparietal sulcus, inferiorly by the fissure of Sylvius, and posteriorly by an artificial line representing a prolongation of the parieto-occipital sulcus. The area thus marked out does not coincide with any of either Flechsig's or Campbell's areas, *e.g.*, according to Campbell, part of this region is of the parietal and part of the temporal type. Lesions of this area in man also produce great diversity of symptoms owing to simultaneous involvement of neighbouring regions. The author, however, records five cases in which this area was affected, and regards the following symptoms as diagnostic of a lesion of the inferior parietal lobe and ascending parietal convolution, namely—the absence of motor paralysis (or if present, only transitory) and the absence of a Babinski's sign, more or less complete hemianæsthesia and astereognosis, hemianopsia if the fibres of the optic radiation be injured, alexia and agraphia, absence of word deafness and mental symptoms in more educated persons. A short discussion is then given of the reasons why lesions in this region may produce some of the above symptoms.

A. NINIAN BRUCE.

SOME MANIFESTATIONS OF PITUITARY GROWTHS. J. JAMESON (40) EVANS, *Brit. Med. Journ.*, Dec. 2, 1911, p. 1461.

THE author classifies the manifestations of pituitary neoplasms into (1) those which may be ascribed to excessive action of the glandular epithelium of the anterior lobe—hyperpituitarism; (2) those which may be ascribed to a diminished functional activity of the anterior lobe—hypopituitarism; (3) those due to the mechanical effects of an intracranial tumour showing definite localising symptoms, which can be explained by the anatomical relationships of the enlarged organ; and (4) confirmatory evidence of enlargement or atrophy of the hypophysis as shown by radiographs of the sella turcica. Five cases illustrative of these points are described and the symptoms discussed.

A. NINIAN BRUCE.

ARTHRITIC MUSCULAR ATROPHY. C. L. ALLEN, *Journ. Amer.* (41) *Med. Assoc.*, Vol. 57, Dec. 23, 1911, p. 2053.

VALTAT and Dide, 1877, produced arthritis experimentally, and studied the subsequent muscular changes. Duplay and Cazin, 1891, showed that the muscular change was one of simple decrease in size of the fibres. Raymond, 1890, cut the lower lumbar and upper sacral dorsal roots of dogs on one side, and subsequently set up arthritis in both knee-joints by silver nitrate injections, cautery, &c. He found that on the side of section there was no muscular atrophy, or only very little. Hoffa, 1892, confirmed this in dogs. Allen has repeated both sets of experiments, and used modern histological methods. Material from seven young dogs utilised. Of these two were laminectomised and rhizotomised, and were kept for 20 and 68 days after production of arthritis in both knee-joints by injection of 25 per cent. silver nitrate.

In remaining five unilateral knee-arthritis produced; sacrificed after 16, 21, 32, 62, and 78 days: in those kept 62 and 78 days the difference in circumference between the two thighs amounted to 6 cm.; slight Faradic reduction on affected side: the muscular fibres preserved their striation, and showed simple reduction in size: no changes found in intra-muscular nerves, or nerve-endings, or peripheral nerves. In the two laminectomised dogs atrophy of thigh was more marked on side of intact roots. With exception of ascending degeneration on one side of spinal cord there were no changes found. L4 and L5 segments were specially carefully examined, in former of which PARHON located cells of origin of anterior crural and obturator nerves, but not one cell showed axonal reaction. In the laminectomised dogs the number of ventral horn cells was greater on side of cut roots, while in the five other dogs it was greater on side of arthritis and muscular atrophy. Allen tested the "disuse atrophy" theory by putting right leg of a rabbit in position of extension in a light plaster cast, with precautions against exertion of pressure, and keeping it thus for 19 days; on removal of plaster difference of 1·25 cm. in circumference of two sides: after 10 days' freedom normal use of leg returned, but difference in size persisted for some time. Discussion of alleged causes of arthritic muscular atrophy. Conclusion is that evidence does not favour a unique cause, but indicates that atrophy is product of a number of different factors which may be responsible to different degrees in different cases. While the reflex theory is not entirely satisfying, it must be admitted that all experiments hitherto go to strengthen rather than to disprove it.

LEONARD J. KIDD.

OSTEO-ARTHRITIS OF THE SPINE AS A CAUSE OF COMPRESSION OF THE SPINAL CORD AND ITS ROOTS.
(42) BAILEY and CASAMAJOR, *Journ. Nerv. and Ment. Dis.*, Oct. 1911, p. 588.

FIVE cases of paraplegia of different degrees of severity are reported in which there were present, in the spinal column or its articulations, changes of the nature of an osteo-arthritis. In three of the cases, these changes were diagnosed by skiagram only, in one, their presence was noted at operation, and in one they were seen by skiagram and at operation. The authors consider that the symptoms present were referable "to compression of one or more nerves or even of the cord itself," as the result of the osteo-arthritic changes present. No case came to post-mortem examination. P. W. SAUNDERS.

SYPHILITIC POLYNEURITIS. (La polynévrite syphilitique.) P.
(43) J. MÉNARD, *Gaz. des Hop.*, 1911, lxxxiv., p. 1917.

MÉNARD describes five varieties: (1) a mixed form, by far the most frequent, characterised by motor sensory, trophic, electrical, and physical changes, (2) a motor form, (3) a sensory form, (4) a trophic form. These last three are much rarer and can scarcely be said to have any independent existence, but the terms are applicable to those cases in which motor sensory or trophic symptoms respectively predominate: (5) pseudo-tabetic form of which Middleton's case is the sole on record. (*Glasg. Med. Journ.*, 1896, 1, p. 57.) A full bibliography is appended.
J. D. ROLLESTON.

DOES SYPHILITIC POLYNEURITIS EXIST? (La polynévrite
(44) **syphilitique existe-t-elle?)** R. DEMANCHE et P. J. MÉNARD, *Presse méd.*, 1911, xix., p. 930.

SYPHILITIC polyneuritis is defined as a polyneuritis occurring in persons undoubtedly syphilitic who show no signs of mercurial poisoning, who have not been exposed to any other infection or intoxication capable of producing it, and in whom mercurial treatment does not aggravate the condition, but rather tends to improve it.

The present case is that of a man, aged 46, non-alcoholic, who got a chancre in November 1908, and was treated with grey oils. The following July 1909 facial diplegia of the peripheral type developed accompanied by intense asthenia and Korsakoff's psychosis. A few days later the facial palsy disappeared, but

paraplegia, with loss of reflexes set in, first in the lower and then in the upper limbs. Death ensued preceded by a rapid rise of temperature and respiratory difficulty. No necropsy.

A review of the literature is given (*v. Review*, 1909, vii., pp. 267, 779; *ibid.*, ix. p. 25). J. D. ROLLESTON.

EPILEPSY AND THE EPILEPTIC TEMPERAMENT. HUNT, (45) *New York Med. Rec.*, Aug. 5, 1911.

AN interesting paper. The author first classifies the disease, following Turner's division and definition. He then discusses the derivation of the word epilepsy from the Greek ἐπι λαμβεινο (to fall upon), pointing out that the original spelling was "epilency." The disease has had many titles: to the ancients it was known as the disease of Hercules, as the life-history of the god, as depicted by Euripides and Seneca, describes well the epileptic and the characteristics of the epileptic temperament. The Romans called the disease by various names, one was "*morbus caducus*" (from *cado*, to fall), the falling sickness; but more commonly "*morbus comitialis*" (the disease of the assemblies), because if a person had a fit during the assembly, all the proceedings were at once stopped, and all acts just framed annulled.

The French term, "*grand mal*," was derived from Celsus, who called epilepsy "*morbus major*," because the disease was terrifying, and great and grand.

The ancient Egyptians, steeped in astronomy, attributed the disease to the evil influence of the moon and stars, hence to them epilepsy was known as the "*morbus lunaticus et astralis*" (the moon and stars sickness). An old appellation was "St John's illness." There are many explanations to this term, one being that when the head of St John the Baptist was presented on a charger to Herodias' daughter, the features bore a strong resemblance to those of an epileptic.

In the eighteenth century a Swiss named John Joseph Ganner called the disease "*morbus demoniacus*." He was a charlatan and religious fanatic, and himself epileptic.

As to the distinctive traits of the epileptic temperament, epileptics are impulsive, egotistical and selfish, self-willed to a degree. They are constantly getting into trouble, and constantly making failures. Mentally, the epileptic shows a gradual but steady deterioration. The author concludes his paper by a few remarks on psychic epileptics and epileptic automatism. With reference to the latter he justly remarks that the epileptic is able to transfer the acts of the normal into the abnormal, but *never* those of the abnormal into the normal.

A. HUME GRIFFITH.

EPILEPTIC FITS. GEORGE JOHNSTON, *Practitioner*, Vol. lxxxvii., (46) No. 4, Oct. 1911.

THIS paper gives a short review of the treatment of "idiopathic" as well as certain other types of epilepsy occurring in patients who suffer from some old standing quiescent cerebral lesion. The usual lines of treatment are laid down under three headings, viz., 1. General Hygienic Treatment; 2. Drug Treatment; 3. Active Treatment of the Fit.

The usual drugs are shortly reviewed, stress being laid on the value of the bromides. It is shown how the sudden stoppage of this drug in a large number of epileptics produced a very marked increase in frequency and severity of the fits. Paraldehyde is mentioned as a valuable drug given in 20 min. doses three times a day. The paper concludes by drawing attention to the difficulty in prognosis, and points out that many of the incurable cases pass into a state of dementia. A. FERGUS HEWAT.

THE TREATMENT OF SYPHILIS BY SALVARSAN. CARL H. (47) BROWNING and IVY M'KENZIE, *Brit. Med. Journ.*, Sept. 23, 1911, p. 654.

THE authors have treated about three hundred cases of syphilis at all stages with salvarsan. In twenty-two cases, where the only clinical evidence of infection was the primary sore, no symptom has appeared since the treatment. In eighty cases, where, in addition to the primary chancre, other signs of infection were present, the chancre healed within a fortnight, and the macular and roseolar eruptions disappeared within ten days. In three of these cases where the drug was given in neutral suspension subcutaneously it was imperfectly absorbed and relapses occurred, the symptoms however disappearing completely after an intravenous injection. In thirty-two cases at the late secondary stage, all of which had proved refractory to mercury, salvarsan produced complete arrest and healing of the local lesion. Gummata and ulcers in the tertiary stage also disappeared. Out of fifty-eight cases of general paralysis of the insane, twelve improved greatly; as also three out of seven cases of tabes. Three cases of congenital syphilis with late lesions proved less satisfactory to treatment than recent acquired syphilis.

Combined treatment of syphilis with mercury and salvarsan is recommended. Mercury merely renders the infection latent, so that the disease may recur at a later date. Salvarsan should be given as soon as possible, preferably intravenously, where there is a suggestion of a primary syphilitic lesion, even if spirochætes cannot be found and the serum reaction is negative. This should

be repeated in three weeks, and followed each time by a course of mercurial inunction. The effect should be controlled by serum tests to ascertain that the serum remains negative, and should be examined at periods of three, six, and twelve months after all symptoms have disappeared. They consider that the unfavourable criticisms regarding the toxity of the drug are without foundation, both as regards death and nerve damage following treatment with salvarsan, and that in most instances fatal results have occurred in cases which were in a hopeless condition prior to treatment, or in which the drug had been wrongly administered.

A. NINIAN BRUCE.

(48) **A FEW SUGGESTIVE EXPERIMENTS FOR A CUTANEOUS REACTION FOR THE DIAGNOSIS OF SYPHILIS. (Preliminary Theoretical Report.)** W. J. SCHOENBERG and E. BURCHELL, *New York Med. Journ.*, Oct. 14, 1911, p. 784.

THE authors have elaborated a theory for the diagnosis of syphilis based upon the tuberculin tissue reaction of von Pirquet and Calmette. The Wassermann reaction, although of great diagnostic aid, yet occurs in conditions other than syphilis, and it is not positive in all cases of syphilis, especially in the very early and late manifestations. The technique is elaborate and difficult, and requires a specially equipped laboratory. Any simple and reliable diagnostic reaction, therefore, would be of the greatest assistance to the general practitioner. In syphilis, as the authors point out, there is almost always manifestations in the skin and mucous membrane, and they were impressed by the similarity of the skin reaction produced artificially by tuberculin in tuberculosis with that produced naturally in syphilis by the spirochæte and its products through the circulation. The ideal virus to use for a skin reaction would be syphilitic, but our biological knowledge of the specific spirochæte is as yet so limited that the use of such a virus necessitates great risk of injury to the patient either through primarily or reinfection with syphilis. The two substances chosen for the preliminary tests were salvarsan and Noguchi's standard solution of antigen (acetone insoluble fraction of an alcoholic extract of normal organs). The reason for the use of antigen was the possibility of being able to apply the Wassermann reaction in vivo, that is, as there is definite affinity between substances contained only in syphilitic serum and antigen, this affinity might be demonstrated by rubbing the antigen on the skin of patients. Salvarsan was used, because this drug has a definite bactericidal action on the spirochæte, and therefore in syphilis when the infection is at its height, and the spirochæte will be all over the body, a local reaction might be expected if this

drug were applied. The possibility is that some of the general toxic reaction which often appears after an injection of salvarsan is due in part to the action of the dead spirochætes, and so if micro-organisms and these can affect the whole body when treated with salvarsan, the deduction is obvious that they should do so also in the skin if the experiment is properly performed. Three sets of experiments were made: (*a*) antigen only used, (*b*) salvarsan only used, (*c*) antigen on one part and salvarsan on another part of the same person at the same time. The epidermis was scraped and a few c.c. of the substance to be tested rubbed in. Eight experiments in all were made, including two normal non-syphilitic controls. The reactions were all negative with both antigen and salvarsan.

The spirochætes are killed by salvarsan, and therefore the authors suggest that the virus for the experimental production of a cutaneous reaction might be obtained by injecting salvarsan into animals which have been previously inoculated with syphilis and use the blood or organ emulsions of these animals as the virus for a cutaneous reaction. WINIFRED MUIRHEAD.

(49) **RECENT DEVELOPMENTS IN THE RECOGNITION, TREATMENT, AND PROPHYLAXIS OF SYPHILIS.** Major FRENCH, *Lancet*, Nov. 11, p. 1315, and Nov. 18, p. 1385.

THIS subject is of importance to the neurologist in connection with the frequent later development of nervous disease due to syphilis. In the early diagnosis of syphilis, the writer, who has had the opportunity of seeing and following up cases in the army in a way which is almost impossible in civil life, lays great stress upon the value of Hunter's original criteria—the induration of the primary chancre and discrete enlargement of the neighbouring lymphatic glands. Some cases, of course, present difficulties, but in a great majority of cases, these two features are present, often when other tests are negative or inconclusive. Demonstration of the treponema pallida is obviously sure proof, but in how many cases of undoubted syphilis can it not be found, even by trained observers! The Wassermann reaction, also, has drawbacks as an aid to diagnosis in the early stage, since it may be negative, even when obvious constitutional manifestations are present, and positive in non-syphilitic conditions. When induration in the primary sore and discrete enlargement of the lymphatic glands are present, the writer considers antisyphilitic treatment justified; in the few cases where these two signs are absent wait for more definite evidence. Without decrying the merits of salvarsan in certain phases of syphilis, the writer considers that its claim to abort syphilis is very far from having been substantiated—it expedites

healing of the lesions, but he considers that when used it should always be rapidly followed up with mercury as the real curative agent. The effects of salvarsan may be brilliant, but they are too often only temporary, judging by clinical reports and the evidence of the Wassermann reaction. Various other adjuvants and further details as to treatment are given. Lastly follow some sound remarks in connection with prophylaxis, dealing especially with the question of compulsory notification of syphilis.

J. H. HARVEY PIRIE.

SALVARSAN IN YAWS. HENRY ALSTON, *Brit. Med. Journ.*, Jan. 6, (50) 1911, p. 14.

SALVARSAN is a specific for yaws, and there is no danger attending its use for this disease. A. NINIAN BRUCE.

TWO CASES OF SEXUAL PRECOCITY. H. T. MACHELL, *Canada*, (51) *Lancet*, Nov. 1911, p. 171.

1. GIRL: Onset of menstruation *æt.* $6\frac{2}{12}$ years, with low spirits, nervousness, tiredness; duration, one week. Menstruated for one week each month from December 1908 (*æt.* $6\frac{2}{12}$ years) to August 1909; missed September; unwell one day, October 1909. Each month pains breasts and legs, and headache. Appetite enormous; bowels regular; loving disposition, passionately fond of children. Breasts resemble those of girl of 12 or 14; considerable pubic hair; vagina admits little finger easily, uterus fair size, ovaries not palpable. Reference to MONTANAIRE'S case.

2. BOY: Pubic hair *æt.* 5 months; erections one year later; emissions *æt.* $2\frac{1}{2}$ years. Father, *æt.* 33, weighed 12 lbs. at birth; developed early; height, 5 ft.; weight in clothes, 103 lbs.; is the small one of family; has three brothers normal size, the youngest developed early; two sisters, menstruated usual age, and are average height and weight.

Patient, whose photo shows pubic hair and great penile size, weighed 20 lbs. *æt.* 4 months (average, $12\frac{1}{2}$ lbs.); at 8 months, 28 lbs. (av. 16); at 12 months, 34 lbs. (av. 21); at 36 months, 50 lbs. (av. 30). Height at 44 months, 3 ft. $9\frac{1}{2}$ in. (av. 3 ft. 1 in.). Head *æt.* 4 years, 22 in. round (av. 19·7); chest *æt.* 4 years, 25·5 in. (av. 20·7). Dorsal surface of penis, measured from abdominal wall, $2\frac{7}{8}$ in., *æt.* $3\frac{4}{12}$ years; very large when lax, enormous when erect. Emissions both "when playing with himself" and at other times. Habits those of much older boys; disdains toys of tiny tots. Manner independent; perfectly self-possessed with strangers, answering questions in a loud, bass, stentorian voice. Machel

offers no suggestion *re* causation. The reviewer thinks a lesion of the pineal body is to be suspected in the light of the work of MARBURG and of VON FRANKL-HOCHWART. No mention of general health, but presumably good at present. The physical overgrowth, precocity in sexual, mental, and vocal development, all suggest hypo-pinealismus. The reviewer draws special attention to the heavy weight of P.'s father at birth, his early development, and ultimate small size when grown up. He thinks this may mean that P.'s father showed a condition of non-fatal hypo-pinealismus in early life, to which was added during adolescence a condition of hypo-pituitarismus. The reviewer has previously suggested a relationship between the pineal and pituitary in a letter on "Pineal Experimentation," in *Brit. Med. Journ.*, Vol. ii., 1910, p. 2002, but the subject is still obscure.

LEONARD J. KIDD.

THE ASSOCIATION OF HYSTERIA WITH MALINGERING. F. (52) PARKES WEBER, *Lancet*, Dec. 2, 1911, p. 1542.

ANOTHER conception of hysteria—this time an evolutionary one, but not, according to its author, exclusive of, or opposed to the views of Janet, Babinski, and others. The view here expressed is that hysteria is an exaggeration (or disorder) of tertiary (nervous) female sex characters. These tertiary, nervous, sex characters include both characters of instinct and of reasoning, and, unlike the primary sex characters, are not the exclusive property of either sex, but are called male or female according as they predominate in one or other sex. In past ages simulation and deception of various kinds must often have been serviceable to the weaker female in protecting herself, and by a process of natural selection the facility or effectiveness would increase, and gradually has become a tertiary sex character. Of course exaggeration of such characters sometimes occurs in the male, and then we have male hysteria. In both sexes the tendency to deceive is normally kept in check by the exercise of reason and memory, but in many hysterics the tendency in question cannot be suppressed. Such persons practise simulation and deception of various kinds without any adequate rational grounds. This would certainly afford an explanation of some of the functional disorders usually classed as hysterical being so frequently associated with a tendency to simulate disease, accident, or injury, but it seems a little far-fetched, for instance, to suggest that "hysterical vomiting" is a pathologically exaggerated action of the reflex defensive mechanism by which poisonous ingesta are rejected.

J. H. HARVEY PIRIE.

A NEW DIAGNOSTIC SIGN IN PARALYSIS AGITANS: THE (53) COG-WHEEL RESISTANCE OF THE EXTREMITIES. HAROLD N. MOYER, *Journ. Amer. Med. Assoc.*, Vol. 57, Dec. 30, 1911, p. 2125.

MOYER has for some years observed the following unrecorded sign, most easily elicited and most commonly present in the upper extremity, but occasionally noted in lower:—Examiner grasps wrist with one hand and steadies arm with other, then makes rapid flexion and extension of arm; one, two, or three sudden slight hindrances to the movement are seen and felt by the examiner; after passive movement of the extremity for a short time the jerks will slowly disappear, and return after rest. For leg, perform rapid flexion and extension of knee of patient seated on table. This sign is an early one, but not constant. Moyer has never seen it except in Parkinson's Disease. It depends on rigidity: is very rarely absent in the cases in which there is not much tremor: therefore, it is of greater value. It cannot be imitated voluntarily. Moyer says he cannot show on his own arm how it feels, but one recognises it the instant one tries it: any old case will do for this purpose. Paper was discussed by three speakers (June 1911) and replied to by author.

LEONARD J. KIDD.

TRAUMATIC TETANUS. Recovery following the Administration (54) of Tetanus Antitoxin. EDWARD N. LIELL, *Journ. Amer. Med. Assoc.*, July 1911.

THE author reports the case of a child, aged 10, who developed symptoms of tetanus nine days after the traumatism, and three days later came under treatment. Fifty-five thousand units of antitoxin were given by intramuscular injection, spread over eleven days. The dosage began with 5,000 units, later being reduced to 3,000 units twice daily, and finally 1,500 units were given twice or once daily. $\frac{1}{6}$ gr. morphia was given on the fifth day of the treatment, and later small doses of chloral were given. Intramuscular injection was used because of its simplicity.

A. FERGUS HEWAT.

A CASE OF TETANUS TREATED BY SUBDURAL INJECTION (55) OF THE ANTITOXIN. Recovery. R. J. MILLARD, *Australas. Med. Gaz.*, June 20, 1911.

THE case of a labourer, aged 17, is reported. He received a trifling cut while playing football barefooted, and symptoms of tetanus developed eight days later. Four days later he was admitted to hospital where $\frac{1}{4}$ gr. morphia with a small dose of pot. brom.

and chloral hydrate was at once given. Six hours later 3,000 units of antitoxin was injected into the spinal canal. He was given another injection two days later, because symptoms had not abated. After two more days of acute symptoms gradual recovery set in, and twenty-seven days after the first symptoms developed he dressed himself. During the acute stage he received $\frac{1}{6}$-$\frac{1}{4}$ gr. morphia four-hourly.

A note is added on Blumenthal's views on several methods of giving the antitoxin, his recommendation being the subdural method. The article closes by drawing attention to the serious prognosis in the case recorded owing to the short incubation period. A. FERGUS HEWAT.

NEUROTIC DYSPEPSIA. (A Post-Graduate Lecture.) GUTHRIE (56) RANKIN, *Brit. Med. Journ.*, Dec. 9, 1911, p. 1524.

TWENTY cases are here recorded, and the frequency with which this purely functional condition is mistaken for duodenal ulcer is pointed out, and a plea against operative interference, until medical measures have had a sufficient chance of proving that they are of no avail, is entered. Possibly ulcer of the duodenum may be merely a late symptom of a neurotic hyperchlorydia; if we exclude malaena, the symptoms are almost identical. The treatment is very fully discussed. A. NINIAN BRUCE.

ANALYSIS OF THE BLOOD IN FOURTEEN CASES OF (57) **PELLAGRA.** J. C. BARDIN, *Amer. Journ. of Insanity.* Oct. 1911, p. 271.

IN such an investigation it is important to exclude the complicating influence of tuberculosis, which frequently co-exists with pellagra. The author's conclusions are that in pellagra there occur an increase of lymphocytes, with a corresponding reduction in polymorphonuclear cells, and a marked diminution in eosinophiles. ERNEST JONES.

PSYCHIATRY.

THE CEREBRO-SPINAL FLUID, ITS CELLULAR ELEMENTS (58) **AND GLOBULIN CONTENT.** FRED. J. FARNELL, *Amer. Journ. of Insanity*, Vol. lxviii., No. 1, July 1911, p. 23.

THE result of an investigation of the cerebro-spinal fluid in mental diseases is contained in this paper. The cellular elements were ascertained by the French three-drop field method, which owing to the personal equation in the technique of making the drop

cannot be so accurate as a definite cell chamber count. The author preferred the Noguchi butyric acid reaction with which to ascertain the presence of globulin in the spinal fluid, and gave a time limit of two hours for precipitation. The result in general paresis for increase of lymphocytes follows closely that of most other observers; on the other hand, only 93 per cent. of cases gave a positive globulin reaction. Three cases of tabes gave a positive lymphocytosis, and in one of these there was no increase of globulin. Two cerebral syphilis gave a lymphocytosis, but in only one was the globulin reaction positive. 89 per cent. of epileptics gave an abnormal increase of lymphocytes but no increase of globulin. Two cases of manic-depressive psychoses and three of dementia præcox, the fluids showed a lymphocytosis and globulin reaction; but in all five syphilis had been acquired. Two or three traumatic psychoses and arterio-sclerotic conditions (non-syphilitic) gave an increase of lymphocytes with no globulin reaction. Two points the paper illustrates very clearly are that there is apparently no connection between an increase of lymphocytes and an increase of globulin, nor is either of these conditions individually dependent upon the presence of syphilis.

WINIFRED MUIRHEAD.

(59) **A STUDY OF MILIARY PLAQUES FOUND IN BRAINS OF THE AGED.** SOLOMON C. FULLER, *Amer. Journ. of Insanity*, Vol. lxviii., Oct. 1911.

THIS comprehensive and interesting paper, which well merits careful reading in detail, comprises an exhaustive study of the so-called miliary plaques, a condition frequently found in the brains of persons dying at an advanced age, and identical with miliary sclerosis. The object of this paper was to obtain data which would serve to explain many obscure clinical states, and aid in establishing a more definite histo-pathology for the types of involution psychoses. Material from 33 elderly people dying insane was employed for study, and in comparison material from 56 others, sane and insane, was selected and examined. Of those 56 cases, all except 3 were well within the period of "senium." From the clinical data, and partly also from the anatomical findings, the 33 cases were arranged in three groups: (*a*) senile dementia, (*b*) arterio-sclerotic dementia with or without gross focal lesions, and (*c*) a group with indefinite clinical symptoms and anatomical signs. The nature and origin of plaques, with the important literature on the subject, is discussed; clinical abstracts and anatomical diagnoses of the cases presenting plaques are given in detail. The microscopical appearance, distribution of plaques, their relationship to glia and nervous elements and to the

vascular apparatus, their association with Alzeimer's intra-cellular degeneration of neurofibrils, and the methods employed for demonstrating plaques are then detailed.

The author came to the following conclusions: (1) While 87·5 per cent. of plaque cases showed atrophy recognisable with the unaided eye, other cases with equally well-marked atrophy were without plaques. (2) 62 per cent. of plaque brains exhibited gross focal lesions resulting from arterio-sclerosis, and all showed more or less advanced cerebral arterio-sclerosis. Cerebral arterio-sclerosis was even more pronounced in non-plaque brains, and arterio-sclerosis alone seemed to have little direct causative relationship to the formation of plaques. (3) Brains exhibiting general histological evidence of senile involution, whether from the sane or insane, are the most likely to yield plaques. (4) Plaques cannot be considered as characteristic for any special form of mental disease, although occurring with greater frequency in senile dementia than in any other form of insanity. (5) The presence of plaques in the brains of elderly people and their absence in others may be explained by the varying onset of senile involution in different people. (6) From evidence furnished a precocious "senium" is conceivable, meaning by this something more than an early cerebral arterio-sclerosis. (7) Plaques when present are more numerous in the portions of the brain which show the maximum general pathological alterations, hence in senile dementia the frontal and hippocampal regions as a rule exhibit the greatest number. (8) The presence of plaques in the molecular layer of the cortex and in the white substance points against an origin from degenerating ganglion cells. (9) A general histological evidence tends to show a similarity between the lesions of senile dementia and normal senile involution. (10) Uncomplicated senile dementia histologically would appear to be only an intensification of alterations found in normal "senium."

GEORGE R. JEFFREY.

ON THE OCCURRENCE OF NODULAR NECROSES (DRUSEN) IN THE CEREBRAL CORTEX. A Report of Twenty Positive Cases. J. B. BETTS, *Amer. Journ. of Insanity*, July 1911, p. 43.

(60)

A VERY condensed report, consisting of a few lines to each case, of twenty cases of insanity in old patients in which nodular scleroses were revealed by means of the Bielschowsky method. The writer states that this is merely a preliminary report, and that "no attempt is made to determine the nature of the pathological process or its distribution in the cortex."

ERNEST JONES.

WASSERMANN REACTION IN GENERAL PARALYSIS. J. P. (61) CANDLER, *Lancet*, Nov. 11, 1911, p. 1320.

THIS is a sequel to a previous paper, and is in the nature of a control by the comparison of the Wassermann reaction with the post-mortem findings. A positive reaction was obtained in sixty-seven out of sixty-nine cases. In only two cases did cerebro-spinal fluid fail to give a positive reaction before death, and in one of these it was positive after death, and the blood was positive three days before death. Six cases of suspected general paralysis in which the reaction was negative turned out post mortem not to be cases of general paralysis. The reaction cannot be obtained in the cerebro-spinal fluid in any other form of insanity, except in a few rare cases of syphilis of the central nervous system. A positive blood-serum reaction merely indicates that the patient has had syphilis. A lymphocytosis of the cerebro-spinal fluid indicates organic disease, but not necessarily syphilis or parasyphilis. J. H. HARVEY PIRIE.

MANIC-DEPRESSIVE INSANITY, THEN SYPHILIS, LATER (62) **GENERAL PARALYSIS.** W. F. LORENZ, *Med. Rec.*, Nov. 11, 1911.

THE patient, between the ages of 21 and 23, had two attacks of depression, and one of excitement. Ten years later he contracted syphilis, and was subjected to rigid mercurial treatment for eighteen months. Eight years after injection he developed typical general paralysis, with all the mental and physical symptoms, and with well-marked changes in the cerebro-spinal fluid. The mental picture was not coloured in any way by the previous psychosis.
W. BOYD.

A MANIC-DEPRESSIVE FAMILY: A STUDY IN HEREDITY. (63) C. G. M'GAFFIN, *Amer. Journ. of Insanity*, Oct. 1911, p. 263.

FOUR generations of a family in which this disease was common are reported. No general conclusions are drawn.
ERNEST JONES.

TREATMENT.

REFLECTIONS ON SOME CRITICISMS OF THE PSYCHO- (64) **ANALYTIC METHOD OF TREATMENT.** ERNEST JONES, *Amer. Journ. of the Med. Sciences*, July 1911, p. 47.

IN this paper, which is based on an address delivered before the Chicago Neurological Society, the author discusses some of the chief objections that have been raised to the psycho-analytic

treatment. Many of the specific objections are only pretexts that cover more general ones. They are traced in great measure to a misunderstanding of the details and principles of the method in question, and to unfamiliarity of the medical profession with psychological considerations. AUTHOR'S ABSTRACT.

PSYCHOANALYSIS OF A MIXED NEUROSIS. H. W. FRINK, (65) *Journ. of Abnorm. Psychol.*, Aug. 1911, Vol. vi., p. 185.

THIS is an excellent study of a case of a mixed neurosis, mainly hysteria. The paper does not lend itself to being abstracted, and it should be read in the original by those interested in the application of the psycho-analytic method. ERNEST JONES.

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Eiger, M. "Topographie des Ganglions du Cœur chez le Cobaye, chez la Souris blanche et chez l'Homme" (*Travaux de la Soc. Scientif. de Varsovie*, No. 3, 1911).

Franz, Shepherd Ivory, and G. R. Lafora. "On the Functions of the Cerebrum: the Occipital Lobes" (*The Psychological Monographs*, Vol. xiii., No. 4, Sept. 1911).

Hammond, Frederick S. "Some Peculiar Nucleolar and Cell Alterations in the Ganglion Cells of the Cerebral Cortex" (*Journ. of Psychol. u. Neurol.*, Bd. 18, 1911, p. 102).

Lorenz, W. F. "Manic Depressive Insanity, then Syphilis, later General Paralysis" (*Medical Record*, Nov. 11, 1911).

Maas, Otto. "Uber den gekreuzten Zehenreflex, im besondern über seine klinische Bedeutung" (*Deutsch. Med. Wchnschr.*, No. 48, 1911).

Sachs, Ernest. "On the Relation of the Optic Thalamus to Respiration, Circulation, Temperature, and the Spleen" (*Journ. Exper. Med.*, Vol. xiv., No. 4, 1911).

Review
of
Neurology and Psychiatry

Original Articles

THE THERAPEUTIC ACTION OF PSYCHO-ANALYSIS.[1]

ERNEST JONES, M.D., M.R.C.P. (Lond.),
Associate Professor of Psychiatry, University of Toronto.

Of all the problems relating to psycho-analysis the one that perhaps most forcibly arrests the student's attention is the question as to how it produces its remarkable therapeutic results. As is well known, the treatment essentially consists in resuscitating the patient's past memories, and thus making him aware of his buried and unconscious processes; when these are laid bare the roots of the symptoms become manifest, and the nature, structure, and meaning of them are plain to both the physician and patient. Anyone hearing of the treatment for the first time almost invariably asks at this point what is done next after the patient is made aware of his buried mental processes, and, on being told that nothing more is done, is naturally puzzled to understand wherein lies the value of the procedure. Some writers, for instance Sidis,[2] burke the difficulty by simply denying that psycho-analysis has any therapeutic effect whatever, a position which not only reveals an engaging innocence of the whole problem at issue, but displays a strikingly ostrich-like attitude towards the blunt fact that the recorded results achieved by psycho-analysis far surpass those to be obtained in any other

[1] Read before the Detroit Society of Neurology and Psychiatry, Dec. 7, 1911.
[2] Sidis, *Journ. Abnorm. Psychol.*, June 1909, Vol. iv., pp. 154, 161.

way. It must, it is true, be conceded that the psycho-analytic method so resembles a measure carried out for purposes of diagnosis rather than one carried out for that of treatment that it is quite comprehensible how a medically trained mind should at first experience difficulty in discerning its therapeutic bearings. Indeed it is impossible properly to appreciate these without having at least some knowledge of the essential differences between conscious and unconscious mental functioning. Consideration of this will be postponed until some other preliminary matters have been dealt with.

Several different explanations have been put forward of the therapeutic results obtained by psycho-analysis, but they all fall fairly well into the three following groups:—

(1) The usual view held by opponents of psycho-analysis is that the results are due to the *suggestive influence of the physician.* There are several insuperable objections to this solution of the problem, of which I will here indicate only one. Psycho-analysis is the only method of treatment of the neuroses in which the suggestive influence of the physician is expressly resolved into its constituent elements, and its effects destroyed. It would now be too curious if the only method in which suggestion is systematically neutralised should be just the one to give far more brilliant results than the methods in which suggestion is deliberately cultivated and employed to the fullest extent of its power; I fear that psycho-analysts must decline the very flattering assumption that their persuasive influence is, in spite of their best endeavours to minimise it, so much greater than that of the professional exponents of suggestion, hypnotism, and "pithiatism."

In accord with the shallowness of this explanation stands the fact that it is proffered by writers who are not only entirely unaware of the nature of psycho-analysis, but who are also, interestingly enough, equally unaware of the nature of suggestion. A crass illustration of the truth of the former statement is afforded by an article of Scott's,[1] Professor of Psychology in Chicago, in which he seeks to demonstrate, on the basis of personal experience, that psycho-analysis operates only through suggestion. He details the experience in question as follows: "The patient was told that she had been guilty of sexual

[1] Scott, *Journ. Abnorm. Psychol.*, Vol. iii., pp. 375, 376.

irregularities, that she had had sexual experiences which had undermined her health, and that her perfect cure was delayed by the fact that they had never been confessed." The patient, in a very natural state of distress, narrated some memories (not detailed by the author), which were, of course, quite conscious and therefore in any case of relatively little pathogenic import. "At the conclusion of her confession she fell back into a condition of relief, which was the condition needed for the most perfect possible working of suggestion. . . . As an antidote to the re-hashing of all this sexual filth the patient was hynotised and total amnesia was suggested for all the ideas which had had a casual (? causal) part in the history of the disease." It is not in my power to imagine a more grotesque caricature of psycho-analysis, nor a course of conduct more at variance with the procedure, ethical attitude, and therapeutic aims of psycho-analysts; it would be hard to believe that the account was published by anyone occupying a responsible scientific position were it not easily to be duplicated by similar publications of German and American writers.

As to the true nature of suggestion, I have gone into this matter so fully on a previous occasion [1] that I may confine myself here to the briefest possible summary of the conclusions there reached. In agreement with Freud [2] and Ferenczi [3] I have pointed out that the action of suggestion in therapeutics is based upon the transference on to the idea of the physician of a number of positive affects that have arisen in earlier emotional experiences in the patient's life. The process is in no sense the mysterious and isolated phenomenon it is commonly supposed to be, but is merely a special instance of the general tendency of neurotics, and to a less extent of normal people, to transfer on to their environment various morbid affects (excessive hate, love, fear, and so on) that are disproportionate in intensity to the present exciting cause, and which owe their continued life and activity to the fact that they have not been released from their fixation to the original causative factors. Therapeutic suggestion owes its potency to the capacity it has in favourable cases of withdrawing the pent-up affects that

[1] "The Action of Suggestion in Psychotherapy," *Journ. Abnorm. Psychol.*, Dec., 1910, Vol. v., p. 217.

[2] Freud, "Drei Abhandlungen zur Sexualtheorie," 2e Auflage, S. 15.

[3] Ferenczi, "Introjektion und Uebertragung," *Jahrbuch f. psychoanalyt. u. psychopathol. Forschungen*, 1909, Band I., S. 422.

are finding an indirect outlet in neurotic symptoms, and allowing them to become affiliated to the idea of the physician. This signifies merely a replacement of the symptoms by an unfortunate kind of dependence on the physician. In some cases the patient may subsequently disengage himself from the latter, and successfully apply his affective tendencies to social uses; this process is known as "sublimation," more suitable channels being found for the disturbing tendencies, and is the one by which the spontaneous cures occasionally seen are also brought about. In only too many instances, however, especially of the more severe forms of neurosis, withdrawal of the physician's influence, *i.e.*, of the opportunity for satisfactory application of the morbid affects, is sooner or later followed either by a relapse to the original condition or by the creation of a fresh series of symptoms. In the sense that Nature abhors a vacuum, the neurotic affects are obliged to have some ideational point of attachment, whether this be a psychogenetic symptom, the thought of a given physician, or some useful social activity. When successful, suggestion, by offering a convenient alternative, temporarily displaces the abnormal affects from the point of support they had formed for themselves, but to which they tend to return as soon as the alternative one is taken away; while, on the other hand, so long as the infantile fixations that are responsible for the very existence of the abnormal affects remain effective, any attempt to discharge these in a social direction usually meets with only a limited amount of success. Psychoanalysis, on the contrary, in releasing the affects from their infantile fixations, not only places them at the disposal of social activities but at the same time robs them of their excessive intensity and other pathological features. Freud[1] emphasises the direct contrast that exists between the aims of suggestion and of psycho-analysis by alluding to the contrast drawn by Leonardo da Vinci between the art of painting, where the work is accomplished "per via di porre," and that of sculpture, where it is accomplished "per via di levare." The former method of treatment acts by putting on something, by adding the force of suggestion in opposition to that of the neurosis, while the other method acts by taking something away, namely, the power that the pathogenic mental processes have over the patient's consciousness.

[1] Freud, "Sammlung kleiner Schriften zur Neurosenlehre," 1906, S. 208.

(2) A second explanation of the therapeutic action of psycho-analysis is based on what may be called the principle of *reassociation*. This has been most clearly expounded by Morton Prince,[1] so that we may take his account of it as a text for our discussion. At the outset it may be said that a psycho-analyst would, with slight modifications, accept Prince's explanation as being in the main a correct description of the way in which the treatment produces its effects; the chief criticism that would have to be passed on it is that it is incomplete. It diverges from the psycho-analytic explanation less than Prince himself appears to think. He writes as follows: "That this method is often useful and efficacious will be admitted, but its mode of working, as I interpret it, is not that which those who employ it suppose. . . . It is worth while insisting that if psycho-analysis merely synthesizes the repressed ideas theoretically it is not the logical method to be employed. The assumed mechanism would require something more. The repressed ideas are pushed into the subconscious because they are in conflict with other wishes and feelings of the individual; the latter rebels against and will not tolerate them. Now if nothing more were done than to bring them back into the consciousness of the individual he still would not tolerate them, and would push them out again. Theoretically, therefore, the method would be useless. But in fact the patient does, we will say, tolerate the ideas that before were unbearable; the conflict ceases. Empirically the method works. Why? The reason is simple: the complex of ideas has been changed of the technique of psycho-analysis and by the very act of bringing to the light of consciousness the repressed ideas—an elaborate process. We do more than this: we give the patient an insight into the meaning of his trouble; we let him see new points of view; we introduce new ideas and feelings into his complexes; in short, re-educate him. It is impossible to practise psycho-analysis without doing this; hence it is nothing more than a special form of the educational treatment and has the same educational value."

Prince is not, as he appears to think, in disaccord with the psycho-analytic school when he insists that the reintroduction into consciousness of a previously forgotten group of ideas is followed by profound changes in the associations and significance of these ideas, changes that are of the utmost importance from the point

[1] Morton Prince, *Journ. of Abnorm. Psychol.*, June 1909, Vol. iv., p. 96.

of view of therapeutics; on the contrary, it is with the aim of making such changes possible that the psycho-analyst seeks to revive the forgotten memories. As, however, they are for the most part automatically carried out by the patient's consciousness, while the part played by the physician is largely confined to the task of rendering the patient aware of his buried tendencies, one is justified in describing the latter procedure as the essential part of the treatment; it is at all events the only indispensable measure.

Prince says that if nothing more were done than to bring the repressed ideas back into the patient's consciousness he still would not tolerate them, and would push them out again. This specious argument, however plausible it may sound, is merely an ingenious piece of special pleading, and arises from a misunderstanding of some very essential considerations. Prince misinterprets Freud's theory of dissociation as being one of 'voluntary repression; the individual pushes out of his consciousness ideas which are painful and unacceptable."[1] While it is possible, and indeed probable, that this process may sometimes take place, the theory of repression is concerned rather with the inhibiting forces (endopsychic censor) that *prevent* certain thoughts from ever becoming conscious; they are in their nature, as Freud terms it, "bewusstseinsunfähig." The most important of the pathogenic thoughts with which we have to deal, certainly most of those that have arisen after the age of early childhood, have never been conscious in the usual sense of the word, and even those of which the patient has once been aware have only been temporarily present in the margin of consciousness, a very different state from that which is meant when we speak of his having been fully conscious of them. Further, Prince completely overlooks here the ontogenetic aspects of the thoughts in question. It is surely obvious that a given group of ideas may have been unacceptable at one period of a person's life, to such an extent as to make it unendurable for him to think of them, and yet need not be so at another period; every physician knows, for example, how much easier it is to obtain from a patient a history of an old delinquency than of a recent one. This is just the state of affairs with the psycho-neuroses, for the repressed wishes at the basis of the symptoms usually lie in the far past, and yet the patient

[1] Prince, *loc. cit.*

may be quite unable to become aware of them without the aid of an external analytic procedure. The other modifications and expansions necessary to make Prince's explanation complete will be best considered in connection with that given by psycho-analysts themselves.

(3) The third explanation, which differs from the preceding ones in that it is proffered by those who have had personal experience of the subject, is that the therapeutic effect of psycho-analysis is in the main to be attributed to the *overcoming of resistances* that constitute the most important factor in the pathogeny of the neurosis. So much weight is attached by Freud to this that in a recent paper[1] he describes as the chief aim of his therapeutic endeavour not, as formerly, the bringing to light of pathogenic complexes, but the direct investigation and surmounting of the inner resistances. The significance of this measure will be more clearly seen after we have discussed what is connoted by a translation of the complexes from a state of unconsciousness to one of consciousness.

An unconscious complex has certain characteristics that distinguish it from any group of ideas in consciousness. Perhaps the most obvious of these is that it is not subject to the direct influence of various conscious mental processes, ratiocination, deliberation, logical argument, ethical and social considerations, and so on. Unconscious wishes are absolutely egocentric and show a cynical disregard for the welfare of even those who stand nearest to one. This is part of the infantile inheritance of the unconscious, self-centrement and lack of social qualities being well-recognised attributes of early childhood life. An unconscious phantasy will destroy a city with fire merely to gratify the individual's desire to pose as a hero, just as a child will in his mind condemn another to death merely so as to get possession of his toys. An allied aspect of unconscious complexes is their autonomous functioning. It is true that they form widespread associations, but they do this only along the directions of their own interest; ideas that contradict or oppose their own conative tendencies are simply ignored as though they did not exist. One cannot exaggerate the extent to which the "water-tight compartment" principle obtains in unconscious mental life. Just as a child may at one and the same time hold two absolutely and mutually

[1] Freud, "Zentralblatt für Psychoanalyse," Jahrgang, i., 1910, S. 3.

exclusive explanations of a given problem, so in the adult unconscious a wish that a certain person might die may remain operative, *i.e*, producing external manifestations, long after the actual death of the person in question; this latter example also illustrates the extraordinary fact that so far as the unconscious is concerned time positively does not exist.

Another way of describing the last-mentioned characteristic is by saying that in unconscious complexes there is an inherent tendency to dissociation. With this goes a feature of the highest significance for neurosis-formation, namely, a heaping-up of the accompanying affects. It may be stated as a general rule that the more conscious is the source of a given affect the sooner and more certainly will this become diffused throughout the person's mind, a process known as discharge of the affect. Two of the consequences that follow this diffusion are that the affect becomes more subordinated to the control of the conscious ego, and that it loses any morbid attributes it may have had, particularly the tendency to be displayed to an excessive degree or on inadequate grounds. Let us take the example of grief at the death of a loved being. Normally this should in time fade, sooner or later according to its original intensity, and will then exert relatively little influence on the subject's daily life. If, on the contrary, the years go by and the grief retains its original acuteness, and if it is displayed on quite minor occasions which in some way remind the subject of his loss, then one can be sure that there are other forces at work than those recognised by the subject, and that the idea of the death of the loved being has become intimately associated with some unconscious and repressed complex. I have recently recorded an example of this very sort.[1] It concerned a young lady who, years after the death of her mother, was obsessed by the thought of it to such an extent that she was totally prevented from applying herself to any of the ordinary daily duties of life. Analysis showed that the event had corresponded with a secret wish long cherished in her unconscious, and that it had occurred under such circumstances as to evoke her latent feeling of guilt by giving her the obsessive (and unconsciously justified) idea that she was responsible for her mother's death.

Translation of an unconscious complex into consciousness is followed by the consequences just indicated. The complex

[1] *Journ. Abnorm. Psychol*, April 1911, Vol. vi., p. 13.

becomes accessible to the influence of numerous conscious considerations bearing on it, but with which it has previously been out of contact. This is what Prince well describes as giving the patient an insight into the meaning of his trouble, letting him see new points of view, and introducing new ideas and feelings into his complexes.[1] The simple fact to grasp here is that consciousness can deal with and control a mental process that is conscious far better than one that is not. The fear is sometimes expressed that the making a patient aware of an undesirable, *e.g.*, criminal, tendency in himself that he previously did not know the existence of may be followed by unfortunate consequences, such as his giving way to the tendency. This fear, the unjustifiability of which is amply rebutted by experience, denotes a very incomplete understanding of the relations of conscious to unconscious mental processes; if the ethical and other inhibitions have proved so powerful that they have prevented the patient from even being aware of the idea of his tendency they will certainly later on be strong enough to check any impulse to follow the tendency if it is one that is contrary to the *present* ethical views of the patient. A second consequence of the translation is that illogical displacements of the affects are resolved through the latter being traced to their original source. This is most clearly seen in the case of the various phobias. A woman whose original fear was that of not feeling safe (from temptation) when out alone, suffers from the inability to leave the house except in the company of her husband or some other safe person; going out alone would bring on an uncontrollable fear that some unknown terrible thing might happen to her. A third consequence is that the affect becomes diffused over the whole mind in the normal way described above. It becomes worked off in various adequate and suitable ways, a process which in connection with very massive affects is known as "abreaction."

All this may be summarised in the sentence that, while an unconscious complex is necessarily in a state of dissociation, translation of it into consciousness signifies its *assimilation*. Under this term is included the conscious dealing with and absorption of the previously repressed thoughts, or rather wishes, together with the abreaction, analysis, and consequent diffusion of the

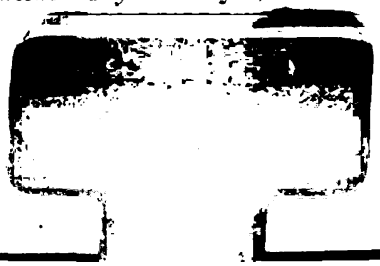
[1] Owing to the fact that Prince uses the term "complex" in a peculiar sense, this last phrase is not very happily chosen, but the general meaning is well enough indicated by the context.

accompanying affects. To secure this assimilation in consciousness is, from one point of view, the central aim of the treatment, and the reason why so much attention has to be paid to the resistance is that these constitute the main hindrance to the assimilation.

It will at once be seen that what has to be striven for is a very different thing from merely getting the patient to know what is the cause of his troubles. To know about them means very little in itself; to realise this knowledge through personal experience is a quite different matter. To tell a patient bluntly who is suffering from agoraphobia that the symptom is usually due to infantile urethral-erotism, however true this may be, does him about as much good as advising him not to be afraid of open spaces; in both cases the only effect would be to make him feel worse, though for different reasons. In a short, but very instructive article,[1] Freud makes some highly apposite remarks on this point: "It is not the not-knowing in itself that is the pathogenic factor, but the foundation of the not-knowing in *internal resistances*, which first brought about the not-knowing and which still maintains it at present. In the subduing of these resistances lies the therapeutic task. . . . If the knowing about his unconscious thoughts were as important for the patient as those who are inexperienced in psycho-analysis believe, then it should be sufficient for a cure that the patient listens to lectures or reads books. These measures, however, have just as much influence on the nervous sufferings as the distribution of menu-cards in a time of famine has upon hunger."

These remarks of Freud's illustrate a common mistake made by beginners in psycho-analysis, namely, the opinion that their task is completed when they have discovered the meaning of the symptoms and communicated it to the patient; in reality this is a relatively early stage in the treatment, for with increasing experience one is often able to divine the chief meaning of the symptom in a short space of time. The following example will perhaps make this point clearer. A young man suffered from a number of obsessions, of which one was to the effect that if he were to touch a light his father would die; in consequence he scrupulously avoided the proximity of any flame, and this naturally

[1] Freud, "Ueber 'wilde' Psychoanalyse," *Zentralblatt für Psychoanalyse*, Jahrgang I., S. 94.



led to the formation of extensive phobias and inhibitions. He had as a child been severely punished for playing with matches and fire. The idea of touching a light, *i.e.*, of doing something forbidden by his father, reminded him of a moth playing around a flame, and his next remark was that this expression (of the moth and the flame) was commonly used in his circle to denote a man's paying improper attention to women. Owing to his father's strictness he had never had the opportunity of taking steps in this direction. The sense of the obsession is plain, as indeed it would be to anyone with experience even apart from the foregoing associations provided by the patient. It had been produced through the mechanism of reversal so common in this disease, and the unconscious thought it expressed would run, not "If I were to play with a flame my father would die," a thought that has no sense, but, "If my father were to die I could play with a flame," where the repressed wish is evident. Now consider the effect of communicating this inference to the patient as an isolated piece of information. In the very unlikely event of his accepting the physician's explanation, he would be totally at a loss to comprehend how he could come to entertain such an unnatural and abhorrent wish concerning his own father, whom he revered and was very fond of. Under the circumstances it would be well-nigh physically impossible for him to believe what might be a perfectly correct inference, and which in the case in question proved to be. It was only the detailed reviving of infantile jealousies, of the different conception of death he had held in early childhood, and many other matters that cannot here be gone into, that enabled him ultimately not only to know that he actually had entertained the wish in question, but fully to realise the precise steps by which this had come about.

Internal resistances have the double effect of, on the one hand, preventing the patient from becoming aware of certain unacceptable thoughts, and on the other of preventing him from seeing the undesired significance of various ideas he cannot avoid the knowledge of. He thus becomes in a double sense psychically blind, and the treatment can from one point of view be described as enabling him to see matters that are plain enough to an objective observer, but which his own inhibitions prevent him from recognising. The following is a simple instance of this:[1]

[1] The full analysis of the case is detailed in the *Psychoanalytisches Jahrbuch*, Band III.

A patient narrated to me on different occasions a series of facts that made it absolutely obvious that his mother had not only repeatedly committed adultery, but had for years led an openly irregular life. The patient had lived with her until the time of her death, which took place when he was about seventeen, but, in spite of the staring significance of the facts he detailed, he was quite unaware of the inference that inevitably followed from them. Now the symptom he suffered from was the curious obsession that there were all sorts of things in daily life that other people could see, but which he couldn't. The individual ideas, which of course were specially determined by his unconscious complexes, were such things as these: certain people had horns on their head, which were plain enough to other people, but which he couldn't see; people had three legs, but he couldn't see it, and so on. The symptom was simply an expression of his unconscious recognition of the fact that there was something of the highest importance in his life that all the world could see except himself. It should be added that his intense striving against wanting to recognise the truth about his mother had far deeper grounds than the natural one of filial piety, though this of course was a contributory factor.

To repeat the main thesis of this paper: Psycho-analysis effects its cures by making the patient aware of the unconscious complexes that lie at the basis of his symptoms, thus enabling the pathogenic agents to become assimilated in consciousness. It achieves this by discovering and surmounting the internal resistances that are the cause of the repression, and which constitute the obstruction preventing the patient from becoming aware of and assimilating the pathogenic mental processes. As, further, it does not confine itself to the unconscious complexes immediately connected with the symptoms, but deals equally with the whole of the repressed material in the patient's mind, its action extends beyond the field of purely medical indications and gives the patient an inner control and self-insight that is not only the best guarantee against any tendency there may be to relapse into a neurotic state, but also the soundest basis for the guidance of his life in the future.

DISSEMINATED SCLEROSIS: RECORD OF CASE WITH LONG PERIODS OF REMISSION.

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DISSEMINATED sclerosis, according to Risien Russell,[1] is a disease which, once fully established, progresses with unerring certainty to death, though this may be long postponed, and there may be many periods of remission before the end is reached. The duration of the disease, however, is so varied that it is scarcely possible to make any more exact statement than that it is to be reckoned by years. In rare cases the course is rapid and death occurs within a year. But more frequently the disease runs a chronic course, either progressive or with remissions; in the former case the symptoms become gradually aggravated, fresh ones appearing in slow succession until death ensues after five to twenty years. In the latter and more frequent condition, we find repeated remissions, improvement, or an arrest of progress, which may last for several years and even simulate recovery. These remissions, however, are followed after a variable period of time by relapses, several such improvements and relapses often occurring in the course of the same case. These periods of amelioration or apparent recovery may be of considerable duration. Buzzard[2] has recorded several cases in which these periods were unusually prolonged. A few writers, however, have doubted whether these periods of improvement are always followed by relapses, and a few cases have been recorded in which such periods have been so prolonged that the authors have considered themselves justified in regarding them as permanently arrested and that a cure had actually taken place. Williamson[3] mentions that cases of apparent recovery have been recorded by Charcot (one), Oppenheim (three), Byrom Bramwell (four), and Maas (one). How difficult it is to be absolutely certain that a cure has really taken place in cases where the

[1] Risien Russell, "Allbut's System of Medicine," Vol. vii., 1910, p. 826.
[2] Buzzard, *Lancet*, 16th July 1904, p. 131.
[3] Williamson, "Diseases of the Spinal Cord," 1908, p. 290.

periods of remission have been greatly prolonged is shown by the following case.

The patient was a man, aged 41, single, who had always lived a healthy life in the country in the South of Scotland. Eighteen years ago, when he was 23 years of age, he suddenly developed great weakness in his arms and legs, which arose in the course of two or three days. He was in the habit at this time of spending many of his nights fishing on the hills, usually wading in the water, and sometimes being immersed up to his neck for hours. He frequently spent several days and nights consecutively in this manner, sleeping on the hill-sides in his wet clothes which were often frozen hard when he came to remove them. The above attack of weakness in his arms and legs developed suddenly after he had spent a number of days in this way. It was accompanied by such marked giddiness that he was forced to remain in bed. After a week, however, he felt so much better that he was able to commence work again as a mason's labourer, but only for three or four days, as the weakness in his arms and legs returned. Not only had he the greatest difficulty in walking, but he became unable to grasp his tools or to hold anything firmly. He was not able to close his hand upon small objects, nor to open it sufficiently to grasp anything large. He became unable to lift his feet off the ground, and had to drag them along. The dizziness returned worse than before, and prevented him from moving about. He also began to notice that his sight was becoming very poor, and that he had great difficulty in emptying his bladder. As a result of these symptoms, he was sent into hospital and was treated for three weeks with rest in bed, massage and electricity. He made rapid progress towards recovery, and left the hospital one week later feeling quite well, but spent the next fortnight quietly at home in the country.

At the end of this time, as it became necessary for him to do something, he entered the militia (*i.e.*, in 1894). From this time onward he felt in perfect health, and was able to do his full share of work and marching. In 1900, he was called out to South Africa for the Boer War, and passed through the greater part of the campaign, undergoing forced marches and numerous other hardships without any return of his previous symptoms. He was on active service at this time for a period of twelve months, and was only off duty once owing to an attack of dysentery at

Warrington. He was sent to the Kimberley Field Hospital and made a quick recovery, returning to his regiment again in a comparatively short time.

After the war was over, he was sent to Cape Town (1901). He felt rather tired after the campaign and easily fatigued, and lay down one afternoon in the sun about mid-day. It was summer and the sun was particularly hot and brilliant. He fell asleep and thinks he remained so for about two hours. He was only wearing a "forage-cap" which did not give much protection to his head. When he was wakened for dinner, he found he was unable to move. He was carried into the hospital and told that he had got sun-stroke. He recovered the movement of his limbs in three or four days, and was able to leave the hospital, although feeling weak, especially in his legs. This feeling of weakness did not improve, his eyesight became dim and blurred, and his giddiness again returned. Although not feeling well, he was never ill enough to be unable to do his ordinary work, and just at this time he was sent home. During the voyage he had very little to do and the rest and sea air benefited him so much that when he landed at Southampton he felt quite well again. He returned home and he spent the next three years working at various employments.

In 1903 he again enlisted in the militia, and served for four years. He was able for all the work and marching, never once being ill, and became one of the finest shots in the regiment. In 1907, however, he began to suffer from severe pain in his back, from which he usually recovered completely after a few days off duty. Towards the end of 1907 this pain in his back became more severe, and was accompanied by the old feeling of weakness in his legs, and giddiness. His hand began to shake very much about this time, and one day he was picked out of the ranks by the doctor when the regiment was paraded for doctor's inspection. He was sent to hospital, and as he did not improve he was discharged from the army. He went home, but his improvement was so slow that he decided to come to the Edinburgh Royal Infirmary, and was admitted to the late Dr Alexander Bruce's wards.

Upon examination he was found to present a fairly typical picture of disseminated sclerosis. There was very marked intention tremor of both hands, and lateral nystagmus, especially well seen in the right eye. His sensations to touch, pain, heat, and cold were all normal. There was marked weakness in both legs, with

a double Babinski's sign and exaggerated knee-jerks. Ankle clonus was present, best marked on the left side. The muscles were in good condition, and the gait was spastic. His speech was clear and distinct, but not "staccato." His pupils were round and equal and reacted both to light and to accommodation. Upon examination with the ophthalmoscope, the discs were found to be pale, and a slight degree of pitting was present, but no other sign of optic atrophy. He had no difficulty in swallowing nor loss of control of his rectum, but he had scarcely any control of his bladder, having to rise as often as forty times during the night.

He remained in hospital for over five months, and was treated by rest, massage, electricity, arsenic, &c. He improved very much, and finally left the hospital saying that he felt quite able to return to work although he did not feel so strong as he had been formerly.

He obtained work as a plasterer, and worked steadily for about two and a half years, when the weakness in his legs and difficulty in walking became more pronounced. His eyesight had not troubled him any more, but his bladder symptoms never properly passed off, and again became aggravated. He accordingly returned to the Royal Infirmary, Edinburgh, and was again admitted to the late Dr Bruce's wards. His most marked symptoms at this time were the weakness of his legs and his bladder trouble. There was no nystagmus, and the tremor of his limbs was only slightly developed. Slight sensory changes were now found, especially to heat and cold. He was treated in a similar manner to the previous time and improved greatly, being able to return to work again.

The interest in this case consists chiefly in the great length of time of his earlier periods of remission. His first attack, in 1894, was clearly one of disseminated sclerosis, and his recovery appears to have been complete. And he had no further attack for a period of seven years, during which time he had undergone all the hardships of forced marches, &c., of the Boer War. At the end of this time, he had a second attack, not very severe, which appears to have followed exposure at mid-day to the South African sun. He recovered from this quickly, and his next attack did not date till six years later, during which time he had again served in the army, and had become one of the best and steadiest shots in the regiment. This attack, which took place in 1907, was more severe than either of the two previous, but he still made a good

though partial recovery, and was able to return to work again. The length of the periods of remission now diminished, as his next attack occurred three years later, and his recovery was again only partial, although he was able to return to work.

His first attack followed prolonged exposure to cold and wet, the symptoms were well marked and passed off quickly. His second attack did not occur until seven years later, again followed exposure, this time to the tropical sun. Had he been seen by some one before this attack who had known he had shown all the symptoms of disseminated sclerosis seven years ago, it is more than probable that he would have been regarded as a case which had been cured. And even this second attack was only mild, and six years elapsed before his third attack, when the disease began to seriously affect him. To be certain that a case of disseminated sclerosis has undergone a complete cure, it is necessary to follow it for a long period of time, and it must not be regarded as evidence of cure simply that no sign of return of the symptoms has occurred in five or six years.

This case, further, illustrates an important point in diagnosis which might be well brought out here, and that is, the frequency with which an early case of disseminated sclerosis is mistaken for hysteria. The first and even the second attacks of the case recorded above were apparently completely recovered from, and it is conceivable that, at first sight, the symptoms and course of such a case might strongly suggest a diagnosis of hysteria. The patient might then continue for a variable period, in this case up to seven years, before a subsequent and more determined attack sheds light on the true nature of the condition.

Abstracts

ANATOMY.

THE HISTOGENESIS OF THE PINEAL BODY OF THE SHEEP.
(66) H. E. JORDAN, *Amer. Journ. Anat.*, Vol. xii., No. 3, Nov. 1911, p. 249.

IN an embryo of 2·5 cm. length the body has the form of a definite pocket lined with ependyma thickened apically. At 5 cm. the cells of its distal and dorsal walls have become stellate and anastomosing processes form a loose syncytial network. A few cells contain melanoid granules. Later blind alveoli make their appearance, and the pia mater sends in vascular trabeculæ dividing the body into lobules. These processes continue up to half term when proliferation seems most active, pigment cells are most abundant, and the alveoli are largest and most numerous. At birth pineal bodies are similar but larger. Between birth and the first year the pineal body enlarges approximately fivefold, and the pigment granules have been distributed by mitosis, giving the impression of a numerical decrease. After the first year local signs of degeneration appear.

If the pineal body of the sheep has important functions, it is probably only during the first eight months of post-natal life. The author finds no clear evidence of a glandular function.

H. A. HILTON.

THE DEVELOPMENT OF THE PURKINJE CELLS AND OF THE
(67) **CORTICAL LAYERS IN THE CEREBELLUM OF THE ALBINO RAT.** WILLIAM H. F. ADDISON, *Journ. Comp. Neurol.*, Vol. xxi., No. 5, Oct. 1911, p. 459.

THE outer granule layer is present from the second day before birth to the end of the third week of post-natal life. From birth onward it is composed of two strata. This layer increases in thickness up to 8 or 10 days after birth, and is then 54 μ thick, and composed of eight or ten rows of cells. Its final disappearance varies in different parts of the same cerebellum.

Purkinje cells are distinguishable at birth along the inner

boundary of the molecular layer. During the first week there is a great increase in size of both nucleus and cytoplasm. At 8 to 10 days there is a definite change in form by elongation of cytoplasm at the ectal pole to form the main dendrite. At the same time all the dendrites become arranged in one plane and Nissl granules appear in the cytoplasm. At birth the cells are arranged in two to three rows, at 3 days in one to two irregular rows. At 5 days in one row.

The molecular layer is at first a narrow zone, at birth only 40 μ broad. There is only a slight increase in it until the Purkinje cells change their form. Coincident with the growth of the Purkinje cells and the reduction of the outer granule layer, the molecular layer widens at a rapid rate, measuring at 25 days 150 μ. At this time the cells of the outer granule layer migrate into the molecular layer, some there form fixed cells, others migrate to the inner granule layer.

The cells of the inner granule layer are derived from two sources, the outer granule layer and the mantle layer.

Golgi cells are distinguished at from 7 to 8 days.

Basket cells are first seen at 11 days.

The author calls attention to the close correlation between the development of motor activities and the development and arrangement of the cells of the cerebellum. H. A. HILTON.

(68) **THE APPLICATION OF THE SILVER IMPREGNATION METHOD OF BIELSCHOWSKY TO RETICULAR AND OTHER CONNECTIVE TISSUE. I. The Mature Tissues.** J. S. FERGUSON, *Amer. Journ. Anat.*, Vol. xii., No. 3, Nov. 1911, p. 277.

THE following points were investigated: (*a*) the staining reaction of reticular and elastic fibres. The reticular fibres were found to blacken by this method, the elastic fibres were left colourless.

(*b*) The relation of reticular fibres to white fibres of collaginous tissue. The results here seemed to confirm the opinion of Mall that reticular tissue is a distinct entity, although the evidence was not conclusive.

(*c*) The relation of fixed connective tissue cells to reticular fibres. The observations appear to show that at times the fibres lie within and at times outside of the cells. The facts are thought to be in accord with Mall's theory of exoplasmic deposit of fibrils with the recession of endoplasm during development.

When nerve, muscle, and embryonic tissues are excluded this method serves almost as a specific stain for reticulum.

H. A. HILTON.

THE CYTO-ARCHITECTONIC STRUCTURE OF THE CEREBRAL CORTEX. LADAME, *Rev. Neurol.*, Nov. 30, 1911, p. 593.
(69)

THIS is simply a brief yet fairly comprehensive *résume* of Brodmann's work on the cortex. S. A. K. WILSON.

PHYSIOLOGY.

THE EXOGENOUS AND ENDOGENOUS TRACTS IN THE SPINAL CORD OF THE DOVE INVESTIGATED BY THE METHOD OF DEGENERATION. (Die Exogenen und Endogenen Bahnen des Rückenmarks der Taube mit der Degenerationsmethode untersucht.) A. KÜHN and W. TRENDELENBURG, *Arch. f. Anat. u. Physiol.* (Anat. Abtlg.), 1911, H. 1 and 2, S. 35.
(70)

THE Marchi method was here used, and the authors find that after section of the posterior roots the fibres may be traced into the posterior columns of white matter, the more caudal fibres being displaced progressively mesialwards by the more cranial entering fibres in a manner similar to that found in the higher mammals.

A hemisection in the lumbar region gives rise to an ascending degeneration in the antero-lateral region of the cord alone, and it is only when a hemisection is made in the cervical region that a degeneration in the region of the direct cerebellar tract is found.

These antero-lateral fibres when traced upwards pass backwards to mingle with those of the direct cerebellar tract and are distributed with them to the cerebellum; it is thus only possible to distinguish or separate these two tracts in the lower parts of the cord (*v. Review*, 1911, March, p. 115). The author is inclined to the view that Gowers' tract is a crossed tract, but does not refer to its cells of origin. A. NINIAN BRUCE.

AN EXPERIMENTAL INVESTIGATION ON THE FUNCTION OF REISSNER'S FIBRE. G. E. NICHOLLS, *Anat. Anzeig.*, Bd. 40, Nos. 15/16, Jan. 11, 1912, S. 409.
(71)

IN the central canal of the brain and spinal cord of practically all vertebrates there may be found, if the material has been well preserved, a fine cylindrical thread which has been named Reissner's fibre. This fibre appears to be structureless and to exist normally under considerable tension. If severed while fresh the free ends recoil sharply and form very characteristic spirally twisted knots. The author divided this fibre in a number of fish, and found that there resulted a temporary loss of control over the pose of the body when at rest, and probably also when in motion, a condition which appears to be liable to occur accidentally

during life. The tangle formed by the recoil forward straightens out again quickly, and the fibre grows back again to make a fresh attachment. A. NINIAN BRUCE.

EXPERIMENTS ON THE CAUSATION OF BERI-BERI (Pre-
(72) **liminary communication).** E. A. COOPER and CASIMIR FUNK, *Lancet*, Nov. 4, 1911, p. 1266.

FROM feeding experiments on birds, the authors find that the polyneuritis, induced by a diet of decorticated and polished rice, is not due to the deficiency of phosphorous compounds, but to the absence of some substance not of proteid nature, devoid of phosphorus, soluble in water and acidulated alcohol, dialysable, and precipitated by phospho-tungstic acid, the precise nature of which is being worked at now. J. H. HARVEY PIRIE.

ON THE CHEMICAL NATURE OF THE SUBSTANCE WHICH
(73) **CURES POLYNEURITIS IN BIRDS INDUCED BY A DIET OF POLISHED RICE.** CASIMIR FUNK, *Journ. of Physiol.*, Dec. 22, 1911, p. 395.

As a result of the work of a number of observers it has been shown that the cortical layers of rice contain a substance which cures beri-beri in man and the polyneuritis which is produced in birds by feeding them on polished rice. Polyneuritis was induced in pigeons by feeding them on ordinary polished rice. The average time before the onset of the symptoms was three weeks. Extracts of the rice-polishings passed into the crop by a tube in suitable doses, resulted in recovery in from six to twelve hours. Too large doses were found to be poisonous owing to the presence of choline. The curative substance present in the rice-polishings was extracted and purified, and found to be an organic base giving a crystalline nitrate, the rough percentage composition of which is given.
A. NINIAN BRUCE.

EXPERIMENTS UPON THE RECIPROCAL FUNCTIONAL IN-
(74) **FLUENCE OF THE CEREBRUM AND CEREBELLUM. (Versuche über die gegenseitige funktionelle Beeinflussung von Gross- und Kleinhirn.)** A. BECK and G. BIKELES, *Pflüger's Archiv*, Bd. cxliii., H. 8, 9, and 10, 1911, p. 283.

ON stimulation of the psychomotor region of the cerebrum, currents of action were found to be much stronger on the opposite cerebellar hemisphere than on the same side. The reversed experiment, however, namely stimulation of the cerebellum, produced only very slight currents of action in the psychomotor region of the cerebrum. A. NINIAN BRUCE.

EXPERIMENTS ON THE SENSORY FUNCTION OF THE CERE-
(75) **BELLAR VERMIS. (Versuche über die sensorische Funktion des Kleinhirnmittelstücks Vermis.)** A. BECK and G. BIKELES, *Pflüger's Archiv*, Bd. cxliii., H. 8, 9, and 10, 1911, p. 296.

CURRENTS of action from stimulation of nerves to the lower or upper limbs, or even the vagus itself, were found to spread to all parts of the cerebellar vermis, and thus afford no evidence in favour of definite sensory localisation in this region.

A. NINIAN BRUCE.

PATHOLOGY.

THE PATHOLOGICAL ANATOMY OF CERTAIN ATROPHIC
(76) **LESIONS OF THE CEREBRAL CORTEX IN SENILITY. (Étude anatomo-pathologique de certains lésions atrophiques du cortex cérébral du vieillard.)** LHERMITTE and KLARFELD, *L'Encéphale*, Nov. 10, 1911, p. 412.

THE authors distinguish two distinct categories of senile cortical atrophy. In one all the tissues of the encephalon are involved: in the other only the true nervous and neuroglial elements, which represent ectodermic tissue. These are distinguished as degenerative atrophy and pure or essential atrophy. While there are practically no variations in pure cortical atrophy, it is otherwise with degenerative atrophy. Of this there are three main histo-pathological types, viz., a "reticular state," an "areolar state," and "miliary necrosis." In the first of these, the majority of the nerve elements have disappeared: in their place is a spongy reticular condition, composed of neuroglial cells and fibres, the latter seeming to pass from one cell to another without interruption, and often fastening themselves on to blood vessels. A few atrophic, sclerosed, and attenuated nerve cells remain. The perivascular space of Virchow-Robin is widely dilated as a rule, but practically empty. Sometimes the neuroglial fibres are enormously hypertrophied. In the second, the areolar condition, there is a more wholesale disappearance of nerve elements, and their place is taken by a neuroglial network in which the spaces are very much larger than in the reticular condition: sometimes they are visible to the naked eye. They are crossed by bands of tissue, in which neuroglial and connective fibres are mixed. In many of them small thrombosed vessels can be recognised. The areolar condition is a combination of ectodermic and mesodermic structures. The condition of miliary necrosis is very different. There is no disintegration of cortical elements, yet the small necrotic foci are readily recognisable, as rounded or oval areas, independent of blood vessels, and staining badly with van Gieson or hæmotoxylin-eosin. Within these areas the cortical elements are grossly degenerated.

In pure cortical atrophy the cortex macroscopically is definitely thinned, while histologically there is a numerical and volumetric diminution of the cells in all the layers; the neurofibrillary network is rarified; the intracellular network is also reduced. Most of the cells are infiltrated with lipochromes. The neuroglial cells are also degenerated in this way, while the neuroglial network is not hypertrophied. S. A. K. WILSON.

(77) **THE COMPLETE HISTO-PATHOLOGICAL EXAMINATION OF THE NERVOUS SYSTEM OF AN UNUSUAL CASE OF OBSTETRICAL PARALYSIS FORTY-ONE YEARS AFTER BIRTH, AND A REVIEW OF THE PATHOLOGY.** G. F. BOYER, *Proc. Roy. Soc. of Med.* (Neurol. Sect.), Dec. 1911, p. 31.

THIS woman was born as a full-term child, the labour was long and difficult, the right arm presenting. Soon after birth it was noticed that the right arm was paralysed and this condition has persisted. As a child sensation in the limb was believed by the mother to have been normal, and there was no weakness of the right leg. Fourteen years before death she became insane after the birth of a baby but recovered in a few months' time. Eight and a half years later she again became insane after a confinement, and remained in Claybury Asylum until her death. In the asylum she gradually lost power in her right leg. At the autopsy, in the cervical region the meninges were found thickened and adherent to the cord over the region from the fifth cervical to first dorsal segments, most markedly about the seventh roots. The anterior roots suffered most, being entirely obliterated at the level of the right seventh cervical. Those on the left side appeared normal. The right brachial plexus consisted of fibrous cords which could not be fully dissected out.

The fifth root seems to be that which suffers most often, judging from the few cases of obstetrical paralysis which have been reported, not as in this case the seventh. The usual site of the lesion is the nerve-trunk itself, but in this case there was superadded a more grave injury of the cord itself amounting to a Gudden's evulsion at the level of the seventh cervical root, and diminishing in severity above and below this point.

Although the left arm did not appear to be involved, histological examination showed great cell destruction on that side of the cord, especially in the seventh cervical segment. The sensory system in this case suffered least damage. A fibrotic band originating in the seventh cervical root of the right side did not extend higher than the nuclei of the posterior columns. The local fibrosis seems to be explained by the extension into the injured areas of the cord of

organised fibrous tissue, resulting from the trauma, but there is a curious local absence of glia proliferation.

Well-marked degeneration was found in the direct pyramidal tracts of the cord, but strangely enough an absence of any corresponding degree of degeneration in the medulla or pons, the reason for which is not quite clear.

Some general change in the giant cells of the cerebral motor cortex had occurred, but there was almost complete disappearance of the Betz cells from the intermediate precentral areas of the middle motor cortex of the left side. The post-central cortex had no changes referable to any one particular area.

The paresis and atrophy of the right leg coming on not so very long before death could not be correlated in any way with the changes due to the obstetrical trauma. It appeared to arise from a primary degeneration of the cell in the anterior horn of grey matter in the lumbar cord, together with an associated degeneration in the Betz cells of the left upper precentral area without any demonstrable degeneration in the right crossed pyramidal tract.

J. H. HARVEY PIRIE.

THE ADRENAL CORTEX, ITS RESTS AND TUMOURS; ITS (78) RELATION TO OTHER DUCTLESS GLANDS, AND ESPECIALLY TO SEX. ERNEST E. GLYNN, *Quart. Journ. Med.*, Vol. v., No. 18, Jan. 1912, p. 157.

THE objects of this paper are: (1) To classify and describe the commoner adrenal tumours upon a combined clinical and histogenetic basis; (2) to draw attention to the relation between the adrenal cortex and other ductless glands, and especially to sex characters; (3) to present new reasons against the hypothesis that renal hypernephromata are derived from adrenal rests. The references to the literature are very extensive. A. NINIAN BRUCE.

CLINICAL NEUROLOGY.

SOME EARLY SIGNS AND SYMPTOMS IN NERVOUS DISEASE. (79) JAMES TAYLOR, *Lancet*, Dec. 9, 1911, p. 1614.

IN this address the author refers to some common difficulties in the recognition of some types of nervous disease in their early stages, and lays stress upon certain points which he has found useful in diagnosis. Some cases are referred to in which slight difficulty in walking was complained of. One turned out to be disseminated sclerosis, the only other early sign being slight emotionalism, ankle clonus on one side, and a double Babinski's

sign. Spinal caries may cause difficulty in walking; locally there is usually no curvature, but only some thickening, and almost complete motor paralysis may be present without any changes in sensation. In subacute combined sclerosis the gait is not unlike that of tabes, but the knee-jerks are active, and the somewhat hilarious frame of mind makes it very easy for this condition to be labelled "functional."

Another difficult class of case to recognise early is acute visual disseminated sclerosis, where visual or ocular symptoms lead the patient to seek the advice of an ophthalmic surgeon in the first instance. Such cases can hardly be recognised until some of the more typical symptoms of the disease develop.

Tabes, commencing with gastric crises, is described. The patient complains merely of recurrent bilious attacks. Such cases are rarely ataxic, but if the eyes and reflexes be examined their true nature should be easily made out. This may, however, be readily overlooked, and the case mistaken for some abdominal condition.

Lastly, "formes frustes" of Graves' disease are mentioned in which neither exophthalmos nor goitre may be present but in which the presence of tachycardia, wasting, and diarrhœa may justify the diagnosis. In this connection the writer expresses his reliance on belladonna in treatment. J. H. HARVEY PIRIE.

ON MYOTONIA. T. WARDROP GRIFFITH, *Quart. Journ. Med.*, Vol. v., (80) No. 18, Jan. 1912, p. 229.

THREE cases are here first described, all occurring in one family. The mother was affected at the beginning of her last pregnancy, and the condition completely passed off on delivery. One daughter was affected as a child, but the symptoms completely ceased later in life. The case of the son is fully described. Besides the usual muscular symptoms it was noted that short and vigorous voluntary contraction was followed by rigidity of the muscles, while extension after a prolonged voluntary effort could be effected as rapidly as in a normal individual. The interossei muscles were also involved, but the muscles of the eyeball escaped.

The fourth case is described as one of myotonia atrophica and hypertrophica, owing to the additional presence of marked atrophy of the muscles. A small piece, which was removed and examined microscopically, showed great increase in the diameter of the fibres —roughly speaking twice those of the control—and marked proliferation of the nuclei within the muscle fibres. There was no increase of interstitial tissue, either fibrous or fatty.

It is suggested that myotonia is not altogether the result of the

alteration in the structure of the muscle fibres, as these may become enlarged without myotonia necessarily being present, and that if other cases could be followed up, it might not prove to be so very exceptional to find that the condition may completely clear up, as occurred in two of the above cases. A. NINIAN BRUCE.

HERPES OF LARYNX AND PHARYNX, WITH REPORT OF
(81) **A CASE.** D. A. PRENDERGAST, *Cleveland Med. Journ.*, Vol. 10, Dec. 1911, p. 1030.

THE studies of Glass at the Chiari clinic of 1906 are quoted as showing that there are two types of this very rare condition, the majority being of febrile origin, a minority being of zosteroid type; in the former the eruption was always bilateral, with moderate pain; in the latter, unilateral, with severe pain, and follows a nerve-trunk. Recurrence rare in latter, not uncommon in former. Other points are mentioned. Prendergast's case = M, 33, perfectly well till one week before consultation; general malaise and severe pain in throat; great pain on swallowing; pain in left ear. On posterior wall of pharynx a row of vesicles about 2 mm. in width, extending towards larynx, sharply outlined, appear distended with fluid, and rest on inflamed areola. Similar group seen on laryngeal surface of epiglottis, and in arytenoid space; vocal cords normal. Left tympanic membrane slightly congested; no bulging evident. Treated by salicylates internally, and alkaline gargle; a week later pain less severe, and eruption rapidly subsiding. Diagnosis usually easy; mode of onset, characteristic appearance of eruption, dysphagia, and clinical course are sufficient. Prognosis good. For the pain, ice pills and insufflation of orthoform and codein. From his clinical findings author classes his case as belonging to the rarer zosteroid group.

LEONARD J. KIDD.

THE NERVE SUPPLY OF THE ANTERIOR ABDOMINAL
(82) **WALL AND ITS SURGICAL IMPORTANCE.** J. P. HOGUET, *Annals of Surgery*, August 1911, p. 159.

IN this paper the author points out the fact that incisions in the abdominal wall are in general made entirely without reference to the nerves. While the nerves supply a relatively small amount of muscle tissue, damage to them is on occasion the cause of paralysis of this area of muscle, which becomes flaccid and permits the formation of a ventral hernia, which may give more trouble to the patient than the complaint for which he was first operated on. Such ventral herniæ are seen in the region of the linea alba: in cases where there has been an operation on the kidney by the

lumbar route and where the last dorsal and first lumbar nerves have been cut. The author considers that the occurrence of right inguinal hernia, after an operation for appendicitis where M'Burney's incision has been used, is due to either section of the last dorsal and first lumbar nerves or to pressure on them by a retractor or drainage tube. The lower fibres of the internal oblique and transversalis muscles which help to form the inguinal canal are paralysed, and therefore more readily allow the passage of a hernia.

The distribution of the lower dorsal and first lumbar nerves is described in detail, and there are illustrations of dissections showing their course.

Hoguet thinks that the free intercommunication between the branches of these nerves prevents the more frequent occurrence of hernia from paralysis. R. C. ALEXANDER.

A CASE OF FRIEDREICH'S DISEASE, WITH AUTOPSY.

(83) LAMBRIOR, *Rev. Neurol.*, Nov. 15, 1911, p. 525.

AN exhaustive pathological examination of a typical case of Friedreich's disease, the patient being a man who died at the age of 27. Corresponding to certain muscular atrophies which the patient showed during life were two foci of "Chronic poliomyelitis" in the anterior horns of the cord. The columns of Goll were completely degenerated, yet sensibility was intact in the inferior extremities, and localisation of stimuli was normal. According to the author the lesion of Friedreich's disease involves posterior columns, posterior roots, and peripheral nerves simultaneously.

S. A. K. WILSON.

TABES LATE IN LIFE DUE TO INHERITED SYPHILIS. (Tabes dorsalis im späteren Alter auf der Basis hereditärer Lues.)

(84) R. v. HÖSSLIN, *Neurol. Centralbl.*, 1912, xxxi., p. 23.

THE patient was a virgin, aged 52, in whom the necropsy confirmed the clinical diagnosis of tabes. Wassermann strongly positive. She had had necrosis of the skull when 10 years of age. The father had died of general paralysis at 36, the mother had had three miscarriages, and a brother who had died at the age of 2 years had suffered from convulsions since birth. J. D. ROLLESTON.

A CASE OF OBSCURE FEVER WITH PRONOUNCED NERVOUS SYMPTOMS, APPARENTLY DUE TO INFECTION BY A LEPTOTHRIX BACILLUS.

(85) J. MICHELL CLARKE and G. SCOTT-WILLIAMSON, *Brit. Med. Journ.*, Jan. 13, 1912, p. 67.

THE case is that of a boy, aged 23, who was admitted to hospital with symptoms which bore a marked resemblance to an irregular case of enteric fever, especially to that type in which the nervous

manifestations predominate. Widal's test was negative, but the cerebro-spinal fluid, blood, and urine all yielded a pure growth of a leptothrix bacillus. A description of the organism, which was gram-negative, is given. Ten days after admission, a fairly rapid fall of temperature took place, and he made a rapid recovery. The authors consider that the infection of the blood probably took place through the bucco-pharyngeal mucous membrane.

A. NINIAN BRUCE.

THE RÔLE OF SCARLET FEVER IN THE ÆTIOLOGY OF
(86) **NERVOUS DISEASE. (Le rôle de la scarlatine dans l'étiologie des maladies nerveuses.)** R. NEURATH, *Semaine méd.*, 1911, xxxi., p. 600.

MENINGISM and meningitis at the onset of scarlet fever are due to the same anatomical lesions, viz., meningeal inflammation, hyperæmia, and increase of the cerebro-spinal fluid. Purulent meningitis may occur at an early period or during desquamation. It may be the result of otitis or some other inflammatory process in the neighbourhood of the brain, but it may also arise independently, sometimes several years after scarlet fever. In one case scarlet fever was followed by hydrocephalus with cerebellar symptoms, and at the necropsy were found meningeal lesions obliterating the foramen of Magendie. In another case scarlet fever was followed by obesity, headache, and increase in size of the cranium. Post mortem, there was meningeal hydrocephalus with dilatation of the third ventricle and compression of the hypophysis. Hemiplegia is the most frequent form of paralysis following scarlet fever, and is usually permanent (*v. Review*, 1908, vi., p. 530).

Scarlatinal aphasia is often associated with right hemiplegia or is a symptom of uræmia. Visual disturbance in scarlet fever is usually due to uræmia, rarely to meningitis. Deafness is of tympanic or of meningeal origin. Epilepsy following scarlet fever is posthemiplegic or occurs independently in the predisposed, in whom also psychoses may develop at any period of the disease (*v. Review*, 1910, viii., p. 713).

In the subsequent discussion on this paper Hochsinger stated that he had seen three cases of nervous disease following scarlet fever. In the first case spasms were followed by epileptic attacks which disappeared after a bromide course continued for three years and were probably due to cerebral hæmorrhage. The second case was one of uræmic convulsions and hemiplegia. The third was a case of Jacksonian epilepsy which started with symptoms of uræmic hemiplegia and affection of speech. The epilepsy became permanent and idiocy resulted.

J. D. ROLLESTON.

FULMINATING PNEUMOCOCCAL CEREBRO-SPINAL MENINGITIS WITHOUT PULMONARY LESIONS AND PROBABLY OF UTERINE ORIGIN. (Méningité cérébro-spinale suraiguë à pneumocoques Talamon-Fränkel et à point de départ probablement utérin.) G. CAUSSAD and LOGRE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1911, xxxii., p. 649.

(87)

A WOMAN, aged 39, was suddenly seized with symptoms of cerebro-spinal meningitis. The cerebro-spinal fluid was thick, syrupy, and bluish in colour, and showed abundant polymorphonuclears and pneumococci. Death occurred on the third day of disease. The history and post-mortem findings suggested that abortion had recently been induced. Although no bacteriological examination of the uterus was made, the writers think that this organ was the portal of infection, as no lesions were found in the lungs, pleura, heart, pericardium, or kidneys.

J. D. ROLLESTON.

PNEUMOCOCCAL MENINGITIS. HORSLEY DRUMMOND, *Brit. Med. Journ.*, Jan. 27, 1912, p. 179.

(88)

THREE cases of pneumonia complicated by nervous symptoms are described. All proved fatal, and at the autopsy, in addition to the lung condition, a greenish purulent exudate was found over the brain and passing down the spinal canal. Stained films showed large numbers of pneumococci. The author considers that involvement of the cerebral membranes is a more frequent complication of fatal cases of pneumonia than is commonly believed.

A. NINIAN BRUCE.

THE EFFECTS OF SUBDURAL INJECTIONS OF LEUCOCYTES ON THE DEVELOPMENT AND COURSE OF EXPERIMENTAL TUBERCULOUS MENINGITIS. WILFRED H. MANWARING, *Journ. Exper. Med.*, Vol. xv., No. 1, Jan. 1, 1912, p. 1.

(89)

SUBDURAL inoculation of tubercle bacilli of established virulence for guinea-pigs and rabbits produces in the dog a tuberculous meningitis, followed by paralysis and death. When suspensions of canine leucocytes are injected subdurally following such inoculations there occurs uniformly a delay in the development of the paralysis and a prolongation of the life of the treated animal. In dogs inoculated with small doses of tubercle bacilli of low virulence, the development of paralysis has been prevented by this means for periods of seven months (up to the present date), while the untreated animals injected with the same cultures have all developed paralytic symptoms within a period of about four weeks.

A. NINIAN BRUCE.

NON-FOLLICULAR SUBACUTE TUBERCULOUS MENINGO-
(90) **ENCEPHALITIS.** ESCHBACH and BAUR, *L'Encéphale*, Oct. 10, 1911, p. 327.

KOCH'S tubercle bacilli, localised on the meninges, do not of necessity give rise to the classical tuberculous meningitis; they may remain circumscribed in their action, producing a meningo-encephalitis in which the symptoms are not meningeal, but cerebral. The authors publish an instructive case of the latter description. In this instance the tuberculous lesion was limited to the deepest part of the fissure of Rolando, whence it had slowly spread outwards to the surface, along the meninges in the fissure, and inwards into the grey matter of the cortex. Meningeal symptoms were conspicuous by their absence: the clinical picture was one of progressive hemiplegia, with Jacksonian epilepsy. No tubercles were present, and no giant cells; but the bacillus itself was found in quantity all through the diseased area. S. A. K. WILSON.

"CATATONISM" IN TUBERCULOUS MENINGITIS, &c. (Cata-
(91) **tonisme au cours d'une méningite tuberculeuse à évolution suraiguë et à forme delirante.)** HESNARD, *L'Encéphale*, Oct. 10, 1911, p. 341.

THE association of catatonic phenomena with meningeal lesions, specially of a tuberculous nature, is fairly frequent. The author reports a case in point. He discusses the pathogeny of catatonia.
S. A. K. WILSON.

CEREBRO-SPINAL MENINGITIS DUE TO BACILLUS INFLU-
(92) **ENZÆ: a Report of two cases from one of which this organism was obtained in pure culture from the circulating blood eighty-five days before death.** LAWRENCE J. RHEA, *Arch. of Inter. Med.*, Vol. viii., No. 2, Aug. 1911, p. 133.

THIS is an interesting paper recording two cases of cerebro-spinal meningitis due to the Bacillus influenzæ. The author gives a summary of the various publications of meningitis which have been recorded as due to this organism, and the usual pathological appearances found, which vary from no visible pathological lesions to very marked gross changes in both the membranes and brain. The author pleads that in cases, specially in children, which show symptoms of meningitis, cultivations should be made from the spinal fluid in media suitable for the growth of the Bacillus influenzæ. Case I. was that of a child of six months who died on the fourth day of illness, cerebral

symptoms developing on the second day. The case was interesting because of the marked small intrapial hæmorrhages throughout the pia arachnoid. A larger hæmorrhage was situated in the left lateral region, and extended down to the fissure of Sylvius, and a smaller one was also situated in the anterior frontal lobes. A pure culture of the influenzal bacillus was obtained from these hæmorrhagic areas. Histological sections revealed an acute encephalitis in sections from the left cerebral cortex, small cortical vessels were seen to have a perivascular hæmorrhage. The encephalitis demonstrates the possibility of paralysis transient and permanent being due to Bacillus influenzæ. The second case occurred in a child of five years who survived eighty-nine days. Lumbar puncture was performed on the fourth day; the cerebro-spinal fluid was cloudy, and a pure culture of Bacillus influenzæ was obtained, and also fourteen days after the onset of the illness a pure culture of the same organism was cultivated from the circulating blood. The patient had a septicæmic temperature. Later symptoms of hydrocephalus and complete left hemiplegia developed. At the autopsy the membranes of the brain were found very much thickened and adherent, especially over the base, and the cerebellar hemispheres were bound together with dense connective tissue. The ventricles were widely dilated and contained 250 c.c. clear spinal fluid. The author considers that possibly the hydrocephalus was due to blocking of the foramen of Majendie resulting from the organisation of inflammatory exudation. The meninges were markedly thickened with connective tissue and infiltration of lymphocytes, also formation of new vessels with plasma cells were present. Many of the arteries showed proliferation of connective tissue internal to the elastic membrane, which in no instance completely occluded the lumen of the vessel. One of the many instructive points in this case is the fact that a bacteræmia can develop in the course of an influenza. A picture of Brain I. and micro-photographs of histological sections of Brain II. are given. Dr Rhea makes some interesting deductions in his summary of these two cases.

WINIFRED MUIRHEAD.

CURIOUS AND UNUSUAL ATROPHY OF THE SPINAL CORD

(93) **AND MEDULLA. (Atrophie curieuse et rare de la moelle epinière et de la moelle allongée: syphilis cérébro-spinale.)** HEIMANOWITSCH, *Nouv. Icon. de la Salpêt.*, Sept.-Oct. 1911, p. 360.

A CASE of cerebro-spinal syphilis with chronic pachymeningitis in which there was a remarkable generalised atrophy of the spinal cord itself. The pachymeningitis was present only in the dorsal part of the cord; the atrophy, therefore, is probably not due to

circulatory defects. Possibly some slow toxic influence may have resulted in the production of the changes described.

S. A. K. WILSON.

CEREBRAL ABSCESSES AND OTHER CIRCUMSCRIBED INTRA-
(94) **CRANIAL SUPPURATIONS IN TYPHOID FEVER. (Ueber Hirnabscesse und sonstige umschriebene intrakranielle Eiterungen im Verlauf und Gefolge von Typhus abdominalis.)** E. MELCHIOR, *Centralbl. f. Grenzgeb. Med. u. Chir.*, 1911, xiv., pp. 1 and 49.

IN a critical review Melchior adopts the following classification: 1. Abscesses following otitis media. These are mostly due to a mixed infection arising in the naso-pharynx and only rarely to the typhoid bacillus. 2. Metastatic or pyæmic abscesses. These are almost invariably due to a mixed infection, *e.g.*, from a bed-sore or pulmonary gangrene. 3. Abscesses without a demonstrable primary focus of suppuration. Unlike the first two varieties these abscesses are usually single, and are chiefly due to the typhoid bacillus.

J. D. ROLLESTON.

A CASE OF CEREBELLAR ABSCESS WITH ISOLATION OF
(95) **MICROCOCCUS CEREUS ALBUS.** HOWARD T. KARSNER, *Journ. Med. Research*, Dec. 1911, p. 393.

THE abscess was a deep-seated non-encapsulated one, destroying the middle lobe of the cerebellum, and extending into both lateral lobes. It contained brownish pus from which a pure culture of *Staphylococcus cereus albus* was obtained. No inflammation of the meninges nor thrombosis of the venous sinuses was found, but an extensive abscess was present at the base of the right lung which had perforated the diaphragm, and numerous small consolidated areas were to be seen scattered throughout both lungs. These, on section, showed frequent groups of cocci similar to those found in the brain.

A. NINIAN BRUCE.

SLIGHT STROKES. S. T. PRUEN, *Proc. Roy Soc. Med.* (Med. Sect.),
(96) Vol. v., No. 1, Nov. 1911, p. 1.

IN this paper the author deals with slight strokes which might be due to a variety of vascular cerebral conditions—not necessarily all hæmorrhages. They are the symptoms which in many cases precede later and more obvious strokes, and which are almost always followed by definite strokes.

Such symptoms occur in persons over 50, suddenly and without warning; they disappear slowly but steadily, but should always

put one on the outlook for further developments of the same nature. The list of symptoms which he has observed as slight strokes is as follows:—"Pins and needles" feeling in arm and leg simultaneously, stumbling with no obvious cause, giddiness, nausea, palpitation, faintness, sudden weakness, confusion of ideas, change of character, headache, sleepiness, feeling of deadness in the abdomen, paresis of one vocal cord, wasting, dysphagia, odd feeling.

J. H. HARVEY PIRIE.

HEMIPLEGIA AND GANGRENOUS VAGINITIS FOLLOWING ABORTION. (Vaginite gangréneuse post-abortive et hémiplégie.) (97) E. LÉVY, *Compt. Rend. d. l. Soc. d'Obst. de Toulouse*, 1911, xiii., p. 269.

A WOMAN, aged 35, two hours after being curetted for retention of the placenta following criminal abortion, developed left hemiplegia which was attributed by Lévy to embolism probably of uterine origin.

J. D. ROLLESTON.

TRANSIENT HEMIPLEGIA FOLLOWING PARTURITION. HUGH (98) GILLIES, *Brit. Med. Journ.*, Jan. 27, 1912, p. 180.

TWO cases are described. The first occurred nearly a month after the birth, the left arm and leg being paralysed, and the head, face, and eyes drawn to the right. Pupils dilated. No valvular disease of heart. Patient was completely conscious next day, and four days later power had to a great extent returned in the affected parts. No albumen in urine at any time.

In the second case, the left arm and leg were paralysed, the face and eyes being unaffected. Consciousness was not lost. The paralysis lasted for three days, and quickly passed off. A systolic aortic murmur was present in this case.

It was considered that both cases were caused by a spasmodic contraction of the cerebral arteries, apoplexy and embolism being excluded by the almost complete and rapid restoration of function in each case, in neither of which, also, were there any signs of kidney trouble. Both cases had had chorea, both were affected on the same side, and both were sitting by the fireside with the child when the attack occurred.

A. NINIAN BRUCE.

A SUPPOSED CASE OF HEAT-STROKE: REMARKABLE RECOVERY. (99) A. S. ST JOHN, *Brit. Med. Journ.*, Jan. 27, 1912, p. 181.

A MAN, aged 53, was crossing a road during one of the hottest days of last summer, when he suddenly found himself on the ground. He recovered immediately. Five hours later, however, he suddenly

became unconscious; the head showed no sign whatever of any injury. He recovered rapidly, but four days later he again became comatose, and seemed hopeless. After withdrawal, under pressure, of 1½ oz. of very slightly red-coloured cerebro-spinal fluid, he again recovered consciousness and all his reflexes returned. Four days later he again lost consciousness, but recovered rapidly after a similar amount of cerebro-spinal fluid was drawn off. From this time onward he never retrograded, and made a complete recovery.

The recovery in a few hours, on two occasions, after withdrawal of cerebro-spinal fluid from what appeared to be imminent death was considered to point to the fact that he was suffering from what might be described as a "blistering of his cerebral cortex," caused by the excessive heat rays of the sun (a meningo-cortical œdema), and that the fluid was being secreted faster than it could drain away, and by removing the excess a drain was established, and thus the pressure was relieved. A. NINIAN BRUCE.

PSEUDO-BULBAR SYNDROME: TUMOUR OF THE CORPUS CALLOSUM. (100) JACQUIN and MARCHAND, *L'Encéphale* (Soc. de psychiat. de Paris), Oct. 19, 1911.

A WOMAN of 66 suffered from somnolence, spastic paresis of all four limbs, hypæsthesia of the left side of the body, dysarthria, dysphagia, ataxic gait with a tendency to retropulsion, asynergy and adiadococinesis. The lesion was a tumour of the genu of the corpus callosum, the centrum ovale of both frontal lobes, and the caudate nucleus, the putamen, the anterior segment of the internal capsule, and the optic thalamus, all on the right side. It is difficult to see how an enormous tumour of this kind can elucidate any of the questions of cerebral physiology.

S. A. K. WILSON.

THE CONTROL OF BLEEDING IN OPERATIONS FOR BRAIN TUMOURS. (101) HARVEY CUSHING, *Annals of Surgery*, July 1911, p. 1.

THE author comments on the change in operative procedure of late years, less regard being given to speed and more to accurate wound closure and hæmostasis.

Two fairly distinct vascular systems are, he says, encountered in operations on the brain, viz., internal and external. They are distinct on the arterial side, but communicate on the venous side, and thus great extracranial stasis occurs in brain tumours.

He details his methods of hæmostasis in such operations. For the scalp he uses a tourniquet and fine sutures, and for checking oozing from the bone he uses Horsley's paste: for hæmorrhage

from the dura pledgets of gauge, pads of cotton, dry and wet, pieces of blood clot or living tissue, and fine clips of silver wire.

In the actual removal of the tumour he advocates great gentleness. He diminishes stasis by pricking subarachnoid spaces, or by ventricular or lumbar puncture; he pushes the larger vessels aside and ligatures the smaller with fine silk before he divides them.

He discusses the indication for postponing further operative procedure at the various stages:—After the scalp has been reflected and before the bone is opened; or after the opening of the bone and before the opening of the dura.

The article concludes with a paragraph on the uses of silver wire clips for hæmostasis in brain operations.

R. C. ALEXANDER.

ACUTE ANTERIOR POLIOENCEPHALOMYELITIS IN SOUTH (102) STAFFORDSHIRE. L. S. TOMKYS, *Brit. Med. Journ.*, Jan. 27, 1912, p. 182.

SEVEN cases are here described, five occurring in separate families and two in a semi-detached cottage about a mile away. None proved fatal. Except for one child, who commenced with measles, there was no history of nasal or pharyngeal catarrh, and only two had diarrhœa previously. The only factor which appeared to be common to all was the plague of flies and wasps.

A. NINIAN BRUCE.

A CASE OF ACUTE ANTERIOR POLIOMYELITIS OF THE (103) ADULT, WITH AUTOPSY. (Un cas de poliomyélite antérieure aiguë de l'adulte, suivi d'autopsie.) PRÉVOST and MARTIN, *L'Encéphale*, Oct. 10, 1911, p. 305.

THIS is an excellently worked-out case of acute poliomyelitis in a woman of 30 years. Only a few unmistakable cases of the disease in the adult have been examined pathologically. (Van Ebuchten, Léri and Wilson, Medea.) The findings in the case here reported show the identity of the condition in the adult with what occurs in the child.

S. A. K. WILSON.

EPIDEMIC POLIOMYELITIS. TWELFTH NOTE—THE VISCERAL (104) LESIONS OF HUMAN CASES. S. FLEXNER, F. W. PEABODY, and G. DRAPER, *Journ. Amer. Med. Assoc.*, Jan. 13, 1912.

A STUDY of the lesions in children leads the authors to put poliomyelitis among the affections in which the organs generally suffer injury. Although the main injury falls on the nervous system, there are also fairly striking lesions in the lymphatic

system and in the parenchymatous organs, especially the liver. The characteristic change in the lymphoid tissue is hyperplasia of cells of the lymph-nodes, and of the lymph-sinuses of the lymphatic glands, and of the corresponding parts of the spleen and hæmolymph glands. The centres of the lymph-nodes show a transformation into pale areas composed of cells of the endotheloid type. The liver shows hyaline focal necrosis of cells followed by regeneration and invasion by lymphoid cells and polymorphonuclear leucocytes. The number of areas of necrosis is remarkably large; individually, they vary in size from a few cells to the eighth of a lobule.

Whether these visceral lesions are to be attributed to parasitic action, or to the action of toxic elements of parasitic origin is a matter still of conjecture. But the polymorphonuclearcytosis of poliomyelitis is caused not only by the lesions of the nervous system but also by lesions of the lymphatic tissues and liver.

J. H. HARVEY PIRIE.

SPINAL SPASTIC PARAPLEGIA OF FLEXOR TYPE. (Paraplégie spastique spinale en flexion.) ETIENNE and GELMA, *Nouv. Icon. de la Salpêt.*, Sept.-Oct. 1911, p. 337.
(105)

A HIGHLY typical instance of the flexor variety of spastic paraplegia as described by Babinski and others, of which the main distinguishing features are:—complete paraplegia with flexor contractures, absence of tendon reflexes, exaggeration of the cutaneous reflex of defence, loss of the abdominal and flexor plantar reflexes, slight amyotrophy, considerable sensory changes. In this instance there was no sphincter impairment. S. A. K. WILSON.

PRIMARY DEGENERATION OF THE PYRAMIDAL TRACT. A. GORDON, *New York Med. Journ.*, Jan. 6, 1912, p. 8.
(106)

THE case is that of a man, aged 34, who began to complain of heaviness in his legs at the age of 16 years. He worked on an ice-plant and was continually exposed to cold and damp. The condition became gradually worse until at 26 he was compelled to give up all physical labour, and presented a typical appearance of spastic paraplegia moderately developed. The electrical reactions were normal. There was no Rombergism, nor anything else of note. Babinski reflex positive on both sides, with ankle clonus and exaggerated knee-jerks. Wassermann's reaction thrice negative, sensation normal, cranial nerves unaffected. Gradually the muscular rigidity became more and more accentuated, the arms being also involved. Six months before death, which took place from pneumonia, he developed profuse diarrhœa, after which he became totally helpless.

A degeneration and sclerosis was found later in both crossed pyramidal tracts through the entire cord and confined to the cord. The direct pyramidal tract was unaffected. There were no changes to be found in the motor area of the brain or in the internal capsules. The cells of the anterior horns of the spinal cord appeared normal, and no evidence of any inflammatory focus could be found anywhere nor any disease of the vessels.

The case is apparently one of pure spastic paraplegia without additional symptoms, and the author places it in the category of congenital abnormalities of development of the central nervous system.

A. NINIAN BRUCE.

OCCLUSION OF THE POSTERIOR INFERIOR CEREBELLAR ARTERY. (107) HERMON GORDINIER, *Albany Medical Annals*, Oct. 1911, p. 585.

THE author reports three fresh instances of this condition, which produces a very definite and unmistakable clinical syndrome. It is summarised (say right-sided) as follows:—

"Sudden onset without disturbance or loss of consciousness, remarkable and long persisting vertigo with nausea and vomiting, deafness on the right side, absolute inability to swallow due to paralysis of the muscles of deglutition of the right side, voice low and hoarse. Staggering towards the right side, often striking objects on that side, the gait resembling closely that due to cerebellar disease. Complete analgesia and thermic anæsthesia of the left side of the arm, trunk, and leg, and sometimes of the face; absolute preservation of tactile sense on the same side. Marked ataxia and loss of muscle sense of the right arm and leg with perfect preservation of the tactile sense on the whole right side; diminution or loss of pain and temperature sense in distribution of right trigeminal nerve. Impairment of sense of pain and temperature in pharynx, while sense of touch is normal. Contracted pupil, ptosis, narrowing of the palpebral fissure, retraction of eyeball of right side, loss of sweating on the right side of face and neck. Motor power normal and no permanent paralysis in the domain of the right facial and hypoglossal nerves unless thrombus extends into vertebral."

S. A. K. WILSON.

A CASE OF RADICULAR TUBERCULOUS SCIATICA, WITH AUTOPSY. (Un cas de sciatique radiculaire tuberculeuse, avec autopsie.) (108) TINEL and GASTINEL, *Rev. Neurol.*, Oct. 30, 1911, p. 453.

A PATIENT with chronic phthisis, who eventually died from tuberculous meningitis, developed a left sciatica thirteen months before his death. The sciatica was very severe in degree, with exacerbations

and remissions at intervals. Pathologically there were an interstitial sclerosis of the left sciatic nerve, cicatricial nodules of tuberculous origin in the sacral roots, as well as signs of an old generalised spinal tuberculous meningitis, on which was superimposed a recent acute and terminal meningitis. In the absence of signs of syphilis, or any other infective condition, the authors consider it logical to attribute the clinical symptoms to a tuberculous infiltration of the sciatic nerve, accompanying the disease of the roots, but not secondary to it. S. A. K. WILSON.

ALCOHOL INJECTION OF THE GASSERIAN GANGLION FOR (109) TRIGEMINAL NEURALGIA. WILFRED HARRIS, *Lancet*, Jan. 27, 1912, Vol. i., p. 218.

EXPERIENCE of eighty-six cases of trigeminal neuralgia treated by alcohol injection, indicates twelve months' complete relief of pain as a minimum, if the offending nerve is properly injected. Perineuritic injections when the nerve has not been properly hit, produce no anæsthesia, though occasionally they relieve the pain for a few days or even weeks. If the nerve is properly injected by alcohol deep anæsthesia of its distribution results, with total loss of its function until regeneration occurs. When regeneration occurs the pain may return, when the treatment has to be renewed, and it is this point which renders injection of the nerve trunks by alcohol inferior to the Krause-Hartley operation for extirpation of the Gasserian ganglion.

It is, however, possible to inject the Gasserian ganglion itself with alcohol, by passing the needle through the foramen ovale, thus destroying the nerve cells in the ganglion. This should render impossible regeneration of the nerve fibres, and the anæsthesia resulting should be correspondingly lasting. He has treated seven patients by injecting the ganglion with alcohol during the last thirteen and a half months, and the resulting anæsthesia for the whole fifth nerve has so far persisted unaltered after the first week.

For the first few minutes the injection of 1 to 1½ c.c. into the ganglion produces total anæsthesia over the whole fifth nerve, though within ten minutes this will fade away over the first two divisions, leaving only loss to pin-prick and the lightest touch. To induce lasting total anæsthesia 3 to 4 c.c. of 90 per cent. alcohol must be employed, though owing to the anæsthesia of the eyeball there is then the danger of keratitis.

No general anæsthetic is necessary in performing the injection, though it may be done under chloroform anæsthesia. Details of technique are given. Though analgesia still persists over the

third division after thirteen and a half months, the motor paresis of the jaw muscles complete at first, has recovered entirely.

AUTHOR'S ABSTRACT.

TWO CASES OF BROCA'S APHASIA, WITH AUTOPSY. (Deux (110) **cas d'aphasie de Broca, suivis d'autopsie.)** DÉJÉRINE and THOMAS, *L'Encéphale*, Dec. 10, 1911, p. 497.

THIS communication ought to be read in the original by all who are interested in the subject. Two typical cases of motor aphasia, severe in degree and complete in extent, of eight and twelve years' duration respectively. In one case, the lesion was an old softening destroying the foot of the third left frontal convolution, the frontal part of the Rolandic operculum, and part of the posterior end of the second left frontal convolution. In the other, the main lesion was subcortical, destroying the white matter underneath the third left frontal convolution and the lower part of the Rolandic convolutions. The insula was also involved. In each the zone of Wernicke was not implicated at all, but the patients' ability to read and write was considerably interfered with. There was no word deafness.

S. A. K. WILSON.

SYPHILITIC POLYNEURITIS. (Polyneuritis luetica.) PLEHN, *Berlin.* (111) *klin. Woch.*, 1912, xlix., p. 105.

A RECORD of two cases of the purely motor type in which the diagnosis rested chiefly on the success of specific treatment. There was no history of infection or other evidence of syphilis beyond a history of two miscarriages in one case, in which Wassermann's test was feebly positive. In the other case there is no mention of it having been employed.

J. D. ROLLESTON.

APRAXIA AND APROSEXIA. MAILLARD and BLONDEL, *L'Encéphale* (112) (*Soc. de Psychiat. de Paris*) Nov. 10, 1911, p. 477.

CLINICAL description of a case of apraxia in a woman of 54, without agnosia or aphasia, but with complete agraphia. The apraxia appeared to be due mainly to lack of voluntary attention. The patient was able to read, but quite unable to spell or to divide a word into its syllables.

S. A. K. WILSON.

TWO CASES OF TETANUS TREATED BY SUBDURAL INJEC-
(113) **TIONS OF MAGNESIUM SULPHATE.** OLIVER SMITHSON, *Brit. Med. Journ.*, Jan. 27, 1912, p. 181.

THE first case is that of a boy, aged 9, who had cut his foot with a rusty nail some days before. Tetanic seizures became so frequent as to be almost continuous, and were not influenced by antitetanic serum given subcutaneously. Lumbar puncture was performed and 2·5 c.c. of cerebro-spinal fluid withdrawn, after which an equal quantity of sterile 25 per cent. solution of magnesium sulphate was slowly injected. From this moment no trace of tetanic spasm occurred. The patient died, however, a few days later.

The second case was that of a girl, aged 8, who cut her foot on a stone. Tetanus developed fourteen days later. Antitetanic serum did not influence the seizures, and 1 c.c. of a 25 per cent. solution of magnesium sulphate was injected into the subdural space. Distinct improvement occurred for six hours, when the convulsions returned. The child died that evening.

The dose of magnesium sulphate recommended is 1 c.c. of a 25 per cent. solution for every 25 lbs. body weight, but the author thinks this dose may be too large. A. NINIAN BRUCE.

A CASE OF PLURIGLANDULAR SYNDROME. (Sur un cas clinique
(114) **de syndrome pluriglandulaire.)** G. DICORATO, *Thèses de Paris*, 1911-12, No. 117.

THIS thesis contains the clinical account of a case in a man aged 29. Hyperthyroidism was shown by goitre, exophthalmos, tachycardia and tremor, hypothyroidism by a slight degree of sclerodermia and deficiency of hair, suprarenal insufficiency by low blood pressure and digestive troubles, and testicular insufficiency by anaphrodisia and atrophy of the testicles. There were also present enlargement of the spleen, atrophy and sclerosis of the liver, and some hypertrophy of the prostate.

There was no evidence of syphilis, and the onset of the condition was attributed to the emotion connected with the administration of an anæsthetic for the removal of adenoids. Organotherapy was not employed, as the patient refused all treatment.

J. D. ROLLESTON.

A TYPE OF NERVOUS VOMITING IN CHILDHOOD. E. B. SMITH,
(115) *Lancet*, Dec. 23, 1911, p. 1769.

THIS is found not uncommonly in children about the period of second dentition, and consists in painless, effortless vomiting occurring directly after meals, without alteration in the general

health, and having its origin in children of nervous habits or inheritance. It is not periodic but persistent, and of almost daily occurrence. No diet or ordinary gastric sedatives appear to have the slightest influence upon it. It is usually associated with other functional nervous disorders such as eneuresis, migraine or habit spasm, and the writer compares it to the first of these conditions as a hyper-excitability of the nervous mechanism of the stomach, and to the same condition in the intestines which gives rise to lienteric diarrhœa.

The treatment resolves itself into an elimination of any causes which may aggravate the underlying nervous instability. Removal from unsuitable home surroundings, and a little firm moral control will often effect a cure. In obstinate cases small doses of arsenic and opium given just before meals always proves efficacious.

J. H. HARVEY PIRIE.

A CASE OF MYXŒDEMA, WITH CHRONIC HALLUCINA-
(116) **TIONAL INSANITY. (Un cas de myxoedème des adultes avec aspect mongoloïde, et psychose hallucinatoire chronique).** RÈGIS, *L'Encéphale*, Dec. 10, 1911, p. 519.

IN a woman of 33, nervous and mental symptoms, and the symptoms of myxœdema developed at the same time. Amelioration of all followed on vigorous thyroid treatment. When the treatment was stopped a relapse occurred. At the age of 45, the appearance of the patient was severely myxœdematous, and she suffered from chronic hallucinatory insanity, without dementia or confusion. The physical symptoms improved under a further course of thyroid treatment, but not the mental.

S. A. K. WILSON.

RAYNAUD'S DISEASE IN A CHILD. (Maladie de Raynaud à
(117) **localisations nasale et auriculaire et erythromélalgie chez un enfant.)** AKCA and LAFON, *Nouv. Icon. de la Salpêt*, Sept.-Oct. 1911, p. 398.

THE unusual features of this case are:—necrosis of the nose and ears, the association of erythromelalgia with gangrene of the extremities, the occurrence of Raynaud's and Weir Mitchell's syndromes in a boy of 12. S. A. K. WILSON.

A NEW CASE OF ACHONDROPLASIA. REBATTU, *Nouv. Icon. de*
(118) *la Salpêt.*, Sept.-Oct. 1911, p. 368.

A TYPICAL case of the affection in a woman aged 48. The author thinks the case belongs to the so-called physiological variety of achondroplasia. A bibliography of all the papers on the subject which have appeared since 1905 is appended. S. A. K. WILSON.

ON THE PRACTICAL RESULTS OF THE RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF SYPHILIS
(119) J. H. SEQUEIRA, *Lancet*, Jan. 20, 1912, p. 153.

THE immediate effects of salvarsan both on the clinical manifestations of syphilis and on the Wassermann reaction are far more rapid than are those of mercury. The ultimate effects in primary syphilis are remarkable; in early cases the secondary stage may be aborted. The effects in well-developed secondary syphilis are less striking and relapses certainly occur. In tertiary syphilis healing is extraordinarily rapid, but the Wassermann reaction is difficult to alter and relapses are likely to occur. It is possible to eliminate almost all the untoward after-effects of the intravenous injection—viz., shivering, pyrexia, and vomiting—by the use of a saline made from freshly distilled water. A. NINIAN BRUCE.

SALVARSAN IN SYPHILIS. W. EVANS, *Lancet*, Jan. 20, 1912, p. 152.
(120)

THE writer considers that salvarsan is a rapid, safe, and effective treatment of syphilis. He recommends the intramuscular injection, rather than the intravenous, for intracranial syphilis, since the introduction of the drug into the circulation is less rapid. In most other cases, however, the intravenous is preferable.
A. NINIAN BRUCE.

PSYCHICAL TROUBLES IN SECONDARY SYPHILIS. (Contribution à l'étude des troubles psychiques au cours des périodes secondaire et secondo-tertiares de la syphilis.)
(121) E. JALLET, *Thèses de Paris*, 1911-12, No. 91.

THE psychical troubles of this stage of syphilis have no distinctive clinical features, but on the other hand are symptomatic of an organic process which consists, at the onset at least, of a latent and abortive meningitis, the existence of which is only revealed by lumbar puncture. Under mercurial treatment the mental symptoms and spinal lymphocytosis disappear. Jallet thinks that patients who show these symptoms at an early period of the infection are especially liable to develop general paralysis at a later date, but that this seqtuel may be prevented by specific treatment guided by the aid of the cerebro-spinal fluid and Wassermann's reaction. The thesis contains eight illustrative cases. J. D. ROLLESTON.

A RESUMÉ OF ONE HUNDRED WASSERMANN TESTS.
(122) JOHN A. RODDY, *New York Med. Journ.*, Sept. 25, 1911, p. 634.

THE technique employed for these reactions differ from the original method inasmuch as a quantitative as well as a qualitative reaction was made, using various doses of complement from

0·05 c.c. to 0·15 c.c. By this means sera which have not marked inhibitive powers were considered positive with the small dose, whereas if only one large dose had been used lysis would have been complete. The method is valuable in controlling the treatment of syphilis by drugs. Dr Roddy divides the results into groups of patients in whom the Wassermann reaction was tested. Six early cases treated with salvarsan; in three after one full dose the reaction became negative and has remained so; two patients required two doses before the reaction became negative; the serum of one patient, in spite of vigorous medication, remained positive. In seven patients treated for two years with mercurial injections, one serum was strongly positive and three weakly positive; and in eighteen patients treated for a similar period with pills, three sera were strongly positive and nine weakly positive. In twenty-seven patients suffering from obscure maladies, who had contracted syphilis five to twenty years previously, nine of whom had received adequate mercurial treatment, three of these nine sera were strongly positive and one weakly positive. Among the remaining eighteen cases who had only received symptomatic treatment, eleven sera were positive. In seven patients who had been thoroughly treated for syphilis, and who were in perfect health at the time of examination five or seven years later, one serum was positive. Finally, in twenty-one cases with no evidence of syphilis, but who were suffering from persistent obscure ailments, the Wassermann was positive in two cases. The author clearly indicates the value of having a Wassermann reaction tested at any period after a patient has acquired syphilis, and that the reaction remains negative more constantly in adequately treated cases, mercurial injection being superior to pill treatment in this respect. WINIFRED MUIRHEAD.

THE PSYCHOLOGICAL INTERPRETATION OF THE HYPNOTIC
(123) **STATE. (Interprétation Psychologique de l'Hypnose.)** ED. CLAPARÈDE, *Journ. f. Psychol. u. Neurol.*, Bd. 18, 1911.

THE problems awaiting solution are: (1) What is the hypnotic state from a structural and dynamic point of view? (2) How is it produced? (3) What is its function, biological significance, and origin?

The most important mental phenomena are the loss of initiative and the post-hypnotic amnesia (when this is present). The intellectual faculties are not affected, but it is principally the affective side of the individual which is altered. As regards suggestibility the author inclines to the view of Sidis, *i.e.*, that hypnotic suggestibility varies directly as direct suggestion, and

inversely as indirect suggestion. The limits of consciousness are widened, as it were, so that "subconscious" processes tend to evidence themselves. The occurrence of certain skin eruptions in hypnosis by suggestion tends to prove that the trophic centres come to a certain extent under the influence of consciousness.

It is not known whether all individuals can be hypnotised, but it is obviously impossible to prove the contrary. There is probably no necessary parallelism between hysteria and hypnosis. Suggestion is not to be regarded as the all-important factor in hypnotism, as true suggestion specifies a definite object in view, *e.g.*, suggestions to sleep should result in the production of normal sleep.

Ferenczi believes that hypnosis consists in an awaking of certain affective complexes in the subject, resulting in complete submission to the hypnotiser: these complexes are reducible to the primitive emotions of fear or of love. The physical methods of hypnotism support this contention.

The phylogenetic standpoint must be adopted in studying the subject, if any light is to be thrown on the biological significance. Analogous or identical conditions occur in all parts of the animal kingdom, and many of these may be reproduced experimentally: these may often be interpreted as the simulation of death as a means of self-defence, or as the complete submission of fear; they may sometimes be accompanied by obviously pleasant sensations. Deltœuf's theory is interesting, *i.e.*, that the hypnotic state represents a primitive property of the organism which enabled the latter to conserve its energy when some concentrated effort was demanded by the biological conditions.

The origin of hypnosis is very obscure and none of the attempts to explain it are entirely satisfactory. The author desires to make it clear that his opinions on the whole subject are very general.

A. L. TAYLOR.

A METHOD OF DETERMINING WHETHER HYPNOSIS IS GENUINE. (Procédé pour controler l'authenticité de l'hypnose.) ED. CLAPARÈDE, *Arch. d. Sc. Phys. et Natur.*, Aug. 1911, p. 159.

(124)

THE method consists in reading to the subject words in series of ten as follows: (1) a series in the waking state, (2) a second series in the hypnotic state, (3) the first and second plus a third mixed together when the waking state is again established. If the post-hypnotic amnesia is genuine the first series will be easily recognised, while those of the second and third will both alike be considered as new. The subject may be hypnotised afresh and the thirty words again presented, with the result that the second series (already heard in hypnosis) is recognised without hesitation and

seems to have a special distinction from the others, which are not recalled with the same ease. Similar results were given with series of pictures shown to the subject. The author concludes that it is not possible to simulate the hypnotic state, and that the latter is a definite and real psychic modification. A. L. TAYLOR.

A HYPNOIDAL CONDITION IN A MONKEY. (État Hypnoïde chez un Singe.) ED. CLAPARÈDE, *Arch. d. Sc Phys. et Natur.*, Aug. 1911, p. 161.
(125)

THE animal in question was a female baboon which usually was fierce and unapproachable. Complete hypnosis was easily produced by the ordinary physical methods, and was accompanied by a typical cataleptic condition. Further experiments, especially on male animals, would be instructive. A. L. TAYLOR.

AN EXTRAORDINARY CASE OF HYPNOTISM. BERNARD HOLLANDER, *Med. Press*, Jan. 3, 1912, p. 12
(126)

ALTHOUGH we have ceased to look upon hypnotism as a fraud, and now acknowledge its value in the therapeutics of functional nervous disorders, there are still very few physicians who have any real knowledge of it, and probably there are not more than a dozen in the whole of Great Britain who make any practical application of it. The above case is therefore of great interest, not only on account of the remarkable cure accomplished, but because of the suddenness with which a patient who had been in medical care for twelve years and was a helpless invalid, was absolutely restored.

The patient, a girl, æt. 22, had chorea when ten years old, and had never recovered, notwithstanding constant medical attendance. She became more and more invalided, partly also through heart complications, rheumatic fever, and appendicitis, and lost the use of her legs in May 1910, so that she took to a Bath chair. Even when thus wheeled about, she was subject to frequent fainting attacks. She suffered besides from insomnia owing to night terrors, her screams rousing the people in adjoining rooms. Apparently she suffered also from torticollis, for her head was permanently turned towards the right shoulder. She complained of considerable pain, and was in a very depressed condition.

On 24th November 1911, she was hypnotised. She did not lose consciousness, yet the suggestion made took remarkable effect. She was told that her muscles would resume their normal position, that she would be free from pain, sleep well at night, undisturbed

by dreams and visions, and would be cheerful. She at once changed her outward appearance, held herself erect, looked happy, and although not having used her legs for over a year and a half, she walked home about two miles. She slept soundly during the night, and has remained a normal, healthy, and cheerful girl ever since.

A further point of interest is that when the patient reported herself again on 1st December, her local medical attendant desired her cured also of chronic constipation and amenorrhæa by the same method, if possible. Suggestion was made to that effect. Her bowels acted directly after this interview, and regularly every morning since, and her period arrived within twenty-four hours.

AUTHOR'S ABSTRACT.

PSYCHIATRY.

THE ETIOLOGY OF MELANCHOLIA, &c. (Quelques considérations
(127) **sur l'étiologie de la mélancholie et sur la place de cette affection dans le cadre nosographique.)** RODIET and MASSELON, *L'Encéphale*, Dec. 10, 1911, p. 532.

THE authors conclude there is no such morbid entity as essential or idiopathic melancholia, and that all cases thus denoted ought to be included in the category of manic-depressive insanity.

S. A. K. WILSON.

A STUDY OF HEREDITY IN INSANITY IN THE LIGHT OF
(128) **THE MENDELIAN THEORY.** A. J. ROSANOFF and FLORENCE I. ORR, *Amer. Journ. of Insanity*, Vol. lxviii., No. 2, Oct. 1911.

THIS interesting study of a profoundly difficult subject was carried out upon the inmates of the King's Park State Hospital, New York. The writers point out the numerous pitfalls and fallacies attendant upon an investigation of this nature, but the results obtained approximated to those which one would have expected on theoretical grounds with a remarkable degree of closeness.

A brief account of the Mendelian theory is first given, and the conclusions arrived at are then stated and discussed.

These conclusions are briefly as follows:—

1. The neuropathic constitution is transmitted from generation to generation in the manner of a trait which is, in the Mendelian sense, recessive to the normal condition.

2. Actual cases, which were not specially selected, were found to follow the various rules of theoretical expectation with quite as much exactness as could be expected, considering the numerous sources of error.

3. Various clinical neuropathic manifestations bear to one another the relationship of traits of various degrees of recessiveness; in a most marked way recoverable psychoses, though recessive as compared with the normal condition, are dominant over epilepsy and allied disorders.

4. Various other clinical neuropathic manifestations bear to one another the relationship of neuropathic equivalents; that is to say, they are conditions of the same degree of recessiveness varying in their clinical manifestations with the personality of the patient, &c.

5. The total incidence of neuropathic conditions may be roughly estimated as affecting between 1·5 and 2 per cent. of the general population.

6. It is further estimated that about 30 per cent. of the general population, without being actually neuropathic, carry the neuropathic taint from their ancestors, and are capable under certain conditions of transmitting the neuropathic make-up to their progeny. W. BOYD.

THE INBORN FACTORS OF NERVOUS AND MENTAL DISEASE. (129) F. W. MOTT, *Proc. Roy. Soc. Med.* (Neurol. Sect.), Vol. 5, No. 1, Nov. 1911, p. 1.

IN this address Dr Mott first of all refers briefly to some of the theories of heredity, and then gives a number of pedigrees showing the transmission of disease. He then deals with the tendency to regression to the normal average of the species and of the race, and at some length with the law of anticipation or tendency in hereditary diseases, for the manifestations of the morbid change to appear at an earlier age, either in members of each succeeding generation as a whole, or in successively born children of one parentage. This seems to be one method by which nature seeks either to end or to mend a degenerate stock. A number of interesting statistical data and family histories are given bearing on this point. These data seem to show that if the offspring of an insane parent passes adolescence he has a very good chance of not inheriting the taint. In the case of insanity it is also shown how there is a strong tendency to an inheritance of the same type of insanity, which is even more marked between the members of the same co-fraternity than between parents and offspring. J. H. HARVEY PIRIE.

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UNIV. OF CALIFORNIA

Review of Neurology and Psychiatry

Original Articles

A CASE OF PSEUDO-BULBAR PARALYSIS.

By WALTER K. HUNTER, M.D., D.Sc.,
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AND
M. E. ROBERTSON, M.B., Ch.B.,
Assistant Pathologist, Glasgow Royal Infirmary.

(With Plate 5.)

THIS case furnishes a good example of how symptoms of bulbar paralysis may result from a bilateral lesion in the upper motor pathways without there being any lesion in the bulb itself.

The patient was a man aged 47 years, and he was admitted to the Glasgow Royal Infirmary on 8th February 1910, with the following history: Four years before, whilst at his work, he suddenly felt giddy and rather ill. He was, however, able to remain at his work until the usual time for leaving, and to walk home unaided, although his gait was unsteady. On arriving home his wife noticed that the mouth was drawn to the right, and that the left angle of the mouth was somewhat depressed. She says there was also some slight loss of power in the left arm and left leg, but it cannot have been marked, for the patient could feed himself and walk about after a fashion. He rested in bed at this time for a fortnight, and when he got up again it was noted that he still dragged the left foot and that his left arm was "shaky." Since this time he had been troubled a good deal with headaches; but he resumed his work after an interval of two months, and he

worked steadily from then till 3rd November 1909, when he had the second seizure. This came on about 2 o'clock in the morning. He wakened his wife so that she might fetch him something, but he could not speak to her and he had to indicate his wishes by means of signs. He was able to get out of bed but he could not stand without support owing to loss of power on his right side. There was great difficulty in feeding him, for he could not open his mouth beyond a short distance, and he could not chew or swallow his food properly. He had, therefore, to be fed on liquids, and it was found easier to insert the spoon at the left than at the right side of the mouth. Subsequent to this he was able to open the mouth wider, and feeding him was then much easier.

The patient was very drowsy for many days after this second seizure, and he would sleep continuously for hours both day and night. For a fortnight to three weeks there was some trouble with the bladder, and during this time he passed urine involuntarily and very frequently, but there does not seem to have been a constant dribbling of urine as with paralysis of the sphincter: later on he had full control of his evacuations.

About six weeks after the loss of speech the patient began to make some attempt to articulate, and his wife said he always spoke better under the influence of emotion. Indeed, she said, she "used to anger him to make him speak." All this time he was able to read and to write, and he was in the habit of conveying his wishes in writing. He had been able to walk, since shortly after the second seizure, though with some dragging of the right foot. There does not seem to have been any disturbance of sensation.

There was no history of syphilis, and the family history was particularly good. His work had been hard, entailing a good deal of stooping; but he was always moderate in the use of alcohol.

On admission to hospital the patient was seen to be rather emaciated. His cheeks were hollow and his face expressionless. Saliva tended to dribble from the mouth. It was difficult to determine if there was much paresis of the muscles in the upper part of the face. The eyes could be opened and closed, and the eyebrows raised and drawn together as in frowning, but these movements were not in the least vigorous. The patient could also lay bare the teeth fairly well, but when doing this the left angle of the mouth seemed to be drawn up rather more than the

right. He could close the lips completely, but they were very easily separated by inserting the finger between them, and the lips could not be brought together as in blowing. When trying to whistle the air escaped much too readily from the corners of the mouth. The movements of the lips were more extensive when expressing an emotion, as, for instance, when weeping or laughing, than when the movement was entirely voluntary.

There was a fairly well marked paresis of the tongue. It could not be protruded beyond the line of the incisor teeth, and there was very little lateral movement, though it could be raised so as to touch the roof of the mouth. Any movement of the tongue was carried out very slowly. There was no apparent atrophy of the lips or the tongue.

The soft palate seemed unduly lax and to hang rather low in the pharynx; there was only slight upward movement on phonation. Food, however, did not regurgitate through the nose, and the voice had not a specially nasal quality.

There was great difficulty in swallowing, attempts at swallowing nearly always producing coughing, as if some particles of food had gone into the air passages. Mastication, too, was very slowly and imperfectly carried out, and food was retained a long time in the mouth before being passed into the gullet. Fluids also gave difficulty, there being the tendency for them to run out at the corners of the mouth.

Speech was very indistinct and mumbling in character, apparently due to some fault of articulation. There was no proper aphonia, and the voice had a high-pitched quality, the pitch always remaining the same with each attempt at speaking. There was practically nothing abnormal to be made out on laryngoscopic examination, and the movements of the vocal cords were good, though that of the left was possibly rather more sluggish than the right. The patient could understand anything he read, and he could write, although he held his pen awkwardly; the movements of writing were slow and apparently carried out with some difficulty. His intelligence seemed quite normal, but he was unduly emotional, and during the course of an examination he would have several attacks of silent weeping.

The pupils reacted to light and to accommodation, and the movements of the eyeballs were unaffected. There was slight pallor of the right disc: otherwise the fundi were normal.

There was no definite paralysis of the arms or legs, but the grip of the left hand was slightly stronger than that of the right as tested by the dynamometer, and in walking the patient was rather unsteady, leaning slightly to the left and with a tendency to drag the right foot. The muscles of the arms and legs were flabby and poorly developed, and there was no appearance of rigidity.

The tendon reflexes of both arms were unduly active, those of the right being rather more so than those of the left. The right knee jerk was also more active than the left, and there was slight ankle clonus on the right. There was a rather imperfect Babinski sign on both sides. The jaw jerk was active. The epigastric and abdominal reflexes were not obtained. The various forms of sensation were intact.

The cardiac area was within normal limits, and the heart sounds, though faint, were free from murmur. The radials were tortuous and slightly thickened: the blood pressure registered 145 mm. Hg. The lungs were practically normal. The urine was free from albumen.

For the first sixteen days after admission to hospital the patient remained much in the same condition as just described, but on the morning of the 24th February he was drowsy and difficult to rouse. He seemed weak and unable to move in bed or to do anything for himself. He made no attempt to speak, and he would not swallow. There was drooping of the eyelids and inequality of the pupils, the right being the larger of the two. The eyeballs were drawn to the left and downwards, and there was marked lateral nystagmus, the jerking movements being towards the right. There was no loss of power in the limbs, and the patient seemed to understand all that was said to him. Later on the face became cyanosed, the breathing shallow and irregular, mucus gathered in the tubes, and he died at 10 P.M. the same evening.

At the post-mortem examination the thoracic and abdominal organs were found to be practically normal. On examining the brain the dura mater was tense and the pia-arachnoid definitely œdematous. There was a recent clot, half an inch in length, in the left vertebral artery, and the basilar artery was contracted to a thin cord. The vessels showed no atheromatous patches, and otherwise were not thickened. The clot seemed to be embolic in origin, but its source was not apparent, for the heart was not

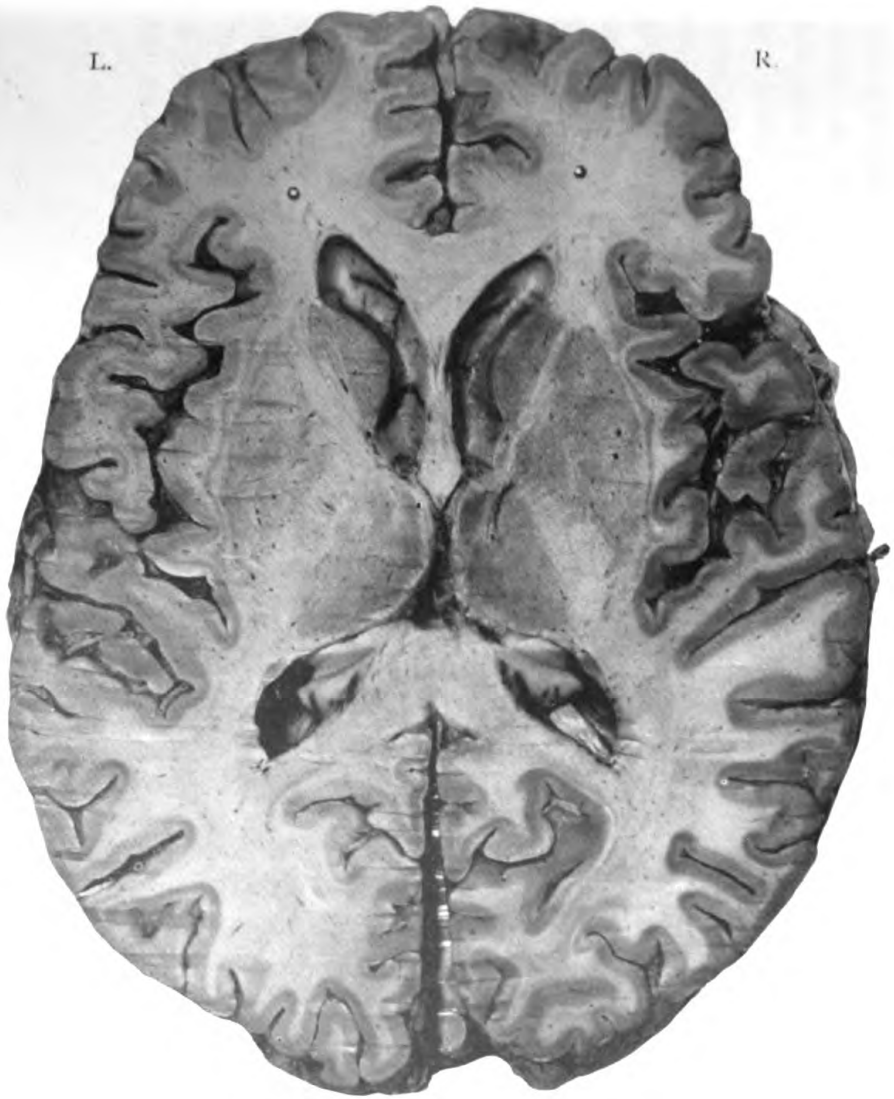


FIG. I.

FIG. II.

PLATE 5.

enlarged, and its valve segments were quite normal. The clot, however, was clearly the cause of death.

There was no external lesion to be made out in the brain itself. It was, therefore, hardened and more fully examined by means of a series of horizontal sections. There was no abnormality in the sections through the upper parts of the basal ganglia, but in the section which passed immediately below the body of the fornix (Fig. 1) there was seen to be a small area of softening occupying the anterior part of the right optic thalamus, and extending into the bend of the right internal capsule. In the next section (Fig. 2), which was cut a quarter inch below the last one and which traversed anteriorly the anterior commissure and posteriorly the pineal gland, there was an area of softening with cystic formation in both internal capsules. On the right side the lesion occupied the anterior end of the posterior limb of the internal capsule as well as the adjacent parts of the optic thalamus and lenticular nucleus. On the left side the softening involved the innermost part of the lenticular nucleus and the adjacent anterior extremity of the posterior limb of the internal capsule. The lesions were thus so low down in the motor pathways that the anterior limb of the internal capsules had practically disappeared. The lesions were almost symmetrical in situation, and of about the same size, only the softening on the right extended rather higher up than that on the left side. Histological examination of horizontal sections showed that the two areas of softening were represented almost entirely by the cystic cavities, there being only a very narrow margin of sclerosed tissue surrounding the cavities. Round this again was brain tissue represented by internal capsule and central ganglia.

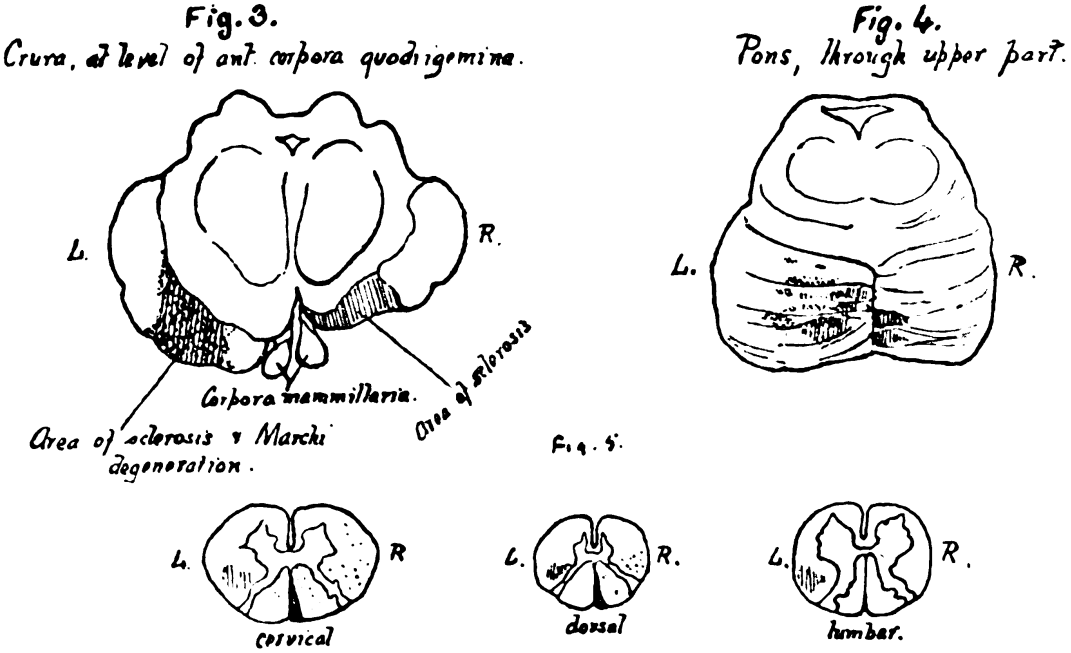
CRURA.—The right crus (Fig. 3) showed very definite shrinkage on its ventral and mesial aspect—this part being much smaller than the corresponding part of the left crus.

Sections were made from both crura just before their entrance into the cerebrum, and were stained by Marchi's and by the Weigert-Pal methods.

In the Marchi sections there was no blackening at all in the right crus. In the left crus an area of degeneration was found to be present, occupying the pyramidal pathway. Degeneration was most marked in the more lateral and ventral part of the pathway, but there was a scattered blackening throughout.

In the Weigert-Pal sections an area of sclerosis was observed in the left crus, occupying pretty much the same position as the degeneration shown by the Marchi method. Sclerosis was not complete, a considerable number of myelinated fibres being still present. The outer or most lateral portion of the crus—about one-half of the whole—and the innermost or most mesial portion of the cortico-pontine bundle of fibres appeared practically normal.

On the right side the mesial portion—rather more than one-third of the whole crus—was sclerosed and shrunken; the more mesial part of the pyramidal pathway and the whole of the



Areas of sclerosis are indicated by shading – Marchi degeneration by dots.

cortico-pontine bundle being included in the sclerosed and shrunken area. Sclerosis was almost complete, and the transition from myelinated fibres to sclerosed tissue fairly abrupt.

PONS (Fig. 4).—The right side of the pons was distinctly smaller than the left. Sections of the pons made through its upper part showed a Marchi degeneration, not very marked, involving several of the pyramidal bundles of fibres. Blackening seemed most marked in those bundles furthest from the ventral aspect of the pons. There was no Marchi degeneration on the right side.

In the Weigert-Pal sections there was a degree of sclerosis

observed in several of the bundles on the left side, corresponding pretty much with the areas of Marchi degeneration, but rather more marked in ventral than in dorsal bundles, and in no case complete.

On the right side one or two bundles near to the ventral aspect and to the median raphe of the pons showed a marked sclerosis. The areas of sclerosis on the right side were more complete but more restricted than on the left side—suggestive of a longer standing lesion with shrinkage.

CORD (Fig. 5).—In the cervical region of the cord a very slight scattered Marchi degeneration was found in the crossed pyramidal pathway, lateral basis bundle, and posterior columns on the right side.

The peripheral part of the column of Goll on this side showed a definite sclerosis. There was also a very slight degree of sclerosis in the crossed pyramidal pathway on the left side—no Marchi degeneration.

In the dorsal region there was slight Marchi degeneration, most marked in the crossed pyramidal tract, on the right side, and some sclerosis, more definite and limited than in the cervical region, in the left pyramidal pathway.

The peripheral part of the column of Goll on the right side was also sclerosed.

In the lumbar region the only abnormality observed was a very slight degree of sclerosis in the left pyramidal pathway.

In the cord, therefore, there was in the cervical and upper dorsal regions a definite sclerosis in the right column of Goll, due most probably to a minute softening in this column somewhere in the lower dorsal region. There was also a very slight, and not unequivocal, sclerosis involving the whole length of the left pyramidal tract, and a very slight Marchi reaction in the right pyramidal pathway. We may take it, then, that the lesions in the internal capsules had affected to only a very limited extent (if at all in the right capsule) the motor fibres supplying the arm and leg on both sides, and this would seem to favour the view that there are very few of the arm and leg fibres situated so far forwards in the motor pathway as the angle of the internal capsule. The diffusion of the degenerated fibres throughout the whole of the motor tract of the left crus suggests, on the other hand, that the fibres to the bulb are not so closely grouped together in this situation as has been figured in some of the text-books.

There is, however, a difficulty in explaining the degeneration in the most mesial part of the right crus. The fibres here are supposed to come through the anterior limb of the internal capsule which the lesion, in the case under consideration, affects to only a very limited extent. It is to be noted, however, that the lesion extends so low down in the internal capsule that the anterior limb of the capsule has almost ceased to be visible, and it is possible that as its fibres pass backwards to enter the crus they may have become involved in the lesion. The absence of degenerate fibres in the left mesial track is doubtless against this view, but on the other hand it is to be noted that though the two lesions are more or less symmetrical they are not absolutely so. The symmetry, too, may be more apparent than real, for the lesion on the right side is much older than that on the left, and will, therefore, have undergone more shrinkage.

The case then seems to be of interest in that there is a lesion in both internal capsules, each lesion limiting itself more or less entirely to the fibres which control the movements for articulation, phonation, mastication, and deglutition. These movements, it is recognised, are represented bilaterally in the cerebral cortex, and hence to produce pseudo-bulbar paralysis there must be lesions involving both right and left motor pathways. No doubt a unilateral lesion may give rise to unilateral facial and hypoglossal paresis, and to some disturbance of articulation, and possibly deglutition, but such disturbance is only of a slight degree.

It is probable that the central ganglia also contain centres for these movements, and according to Marie a bilateral lesion of the lenticular nuclei may cause bulbar symptoms. The central ganglia have apparently likewise an influence over the functions of the bladder and rectum, and in the case we have just described, the slight involvement of the optic thalami and lenticular nuclei possibly account for the polyuria and incontinence from which the patient suffered. The emotional seizures which he had from time to time may also be associated with the lesion involving these ganglia.

Plate.

Fig. 1. Horizontal section of brain passing immediately below the body of the fornix. Shows softening at angle of right internal capsule.

Fig. 2. Horizontal section of brain passing anteriorly through the anterior commissure and posteriorly through the pineal gland. Shows softening with cystic formation at angle of each internal capsule.

THE CEREBRO-SPINAL FLUID.*

By D. K. HENDERSON, M.B. Ch.B.,
Assistant Medical Officer, West House, Morningside. Late Assistant Physician, Psychiatric Institute, New York.

SINCE Widal, Sicard, and Ravaut in 1900 first pointed out the diagnostic value of a cell increase in the cerebro-spinal fluid of patients suffering from various types of nervous and mental disease many new methods have been devised, cytological, chemical, and serological, all of which have helped to confirm lumbar puncture as one of the most valuable diagnostic aids we possess. At present, indeed, so much importance is laid on lumbar puncture that perhaps the majority of us tend to lay too much stress in diagnosis on the findings of the cerebro-spinal fluid, and on that account neglect, to a certain extent, the careful clinical examination of our cases. Such a state of affairs is of course entirely wrong, because it must always be remembered that examinations of the cerebro-spinal fluid are delicate operations, require specially trained workers, and are subject to frequent error.

The object of this paper is to compare the findings, cytological, chemical, and serological, in 118 cases, of whom 55 are cases of general paralysis; 20 cases of cerebral syphilis; 16 cases of a psychosis with other nervous disorders; 14 cases of alcoholic psychosis; 8 functional acquired states; 3 cases of constitutional inferiority; and 4 cases undiagnosed.

The methods employed will be first described, after which the clinical groups will be taken up one by one.

General Procedure.—The operation of lumbar puncture is now such a routine procedure that any detailed description of the method would be entirely superfluous. Suffice it to say that each puncture was performed, where possible, with the patient in the sitting position, the needles and skin were carefully sterilised, and the site of puncture was sprayed with ethyl chloride. The level of puncture was usually at the level of the fourth lumbar interspace where, according to Sicard, the dura is most firmly attached, and therefore, theoretically, if one punctures at this level there is less chance of pushing the membranes in front of the needle, and obtaining the so-called "dry puncture." Following the puncture

* This work was carried out in the Psychiatric Institute, New York.

the patient was confined to bed for twenty-four to forty-eight hours. In cases in which the clinical signs pointed conclusively to general paralysis or cerebral syphilis 10 c.c. cerebro-spinal fluid were withdrawn, but in other cases no more than 5 c.c. were withdrawn. Even when such a distinction was made it was quite striking to note how on the one hand the general paralytic or syphilitic practically never experienced any severe after-effects, and on the other hand how frequently the functional, alcoholic, and other negative cases complained of headache and nausea, and suffered from vomiting following the operation. Some writers have even gone the length of saying that the presence of after-effects strongly contradicts the possibility of general paralysis.

As far as my experience goes, no specially untoward results have been encountered, but one must utter the warning that, even although lumbar puncture is a routine proceeding, no more fluid should be drawn off than is absolutely necessary; cases of brain tumour are probably best left unpunctured.

Pressure.—Various types of manometer have been introduced with a view to measuring the pressure of the cerebro-spinal fluid, but the results obtained have always been extremely variable. Eve (1) has stated that the factor which seems to influence pressure most is the blood pressure, which in turn is influenced by the emotional state of the patient. Ebright (2), working with a mercury manometer, found the pressure highest in acute inflammatory conditions, *e.g.*, tubercular meningitis and epidemic cerebro-spinal meningitis. Rous (3), after doing a special piece of work on pressure, came to the conclusion that it could be quite satisfactorily measured by sight.

In the cases here recorded, the pressure has been measured by sight in terms of high (with a spurt and a steady stream), moderate (slow, steady stream), low (drop by drop).

No constant result was found in any of the groups of cases examined.

Alkalinity.—Normally the cerebro-spinal fluid as tested by litmus paper gives an alkaline reaction. In none of the different types of cases which I have examined has there been any deviation from the normal.

Cytology.—Since Widal and Ravaut first pointed out the importance of the examination of the cellular element of the cerebro-spinal fluid in nervous and mental diseases, the method has lost

nothing in value and has gained in accuracy. The original method consisted in centrifuging at high speed a few c.c. cerebro-spinal fluid, decanting and taking up the deposit in a fine capillary pipette. This deposit was then blown in small drops on to a slide, fixed, stained, and the number of white cells per oil immersion field estimated. Many objections may be advanced against this method. It is well known that centrifugalisation destroys the form of the cells, it is difficult to collect the whole deposit, the speed and duration of the centrifuging are apt to vary, the size of the drops varies, and furthermore the deformed cells cannot be very satisfactorily stained.

Laignel and Lavastine (4) tried to introduce a more accurate method by using an ordinary blood-counting slide, but as they first centrifuged, some of the above mentioned objections hold good for their method. The method which I have employed is the one which was introduced by Fuchs and Rosenthal (5) in 1904. Fuchs and Rosenthal had a special slide constructed which enabled them to examine the undiluted fluid, and did away entirely with the use of the centrifuge. The slide is similar to an ordinary blood-counting slide, but the measurements are greater; the depth is 0·2 mm. and the rulings are 4 mm. on a side. The pipette is the same as that used for counting leucocytes. As a help for recognising the cell types, Fuchs and Rosenthal recommend the following stain:—

Methyl violet - - -	0·10
Aqua dist. - - - -	50·0
Ac. acet. glac. - - -	2·0

The method of procedure is as follows: As soon after the puncture as possible draw up the cerebro-spinal fluid to the mark 1 on the pipette, and then draw up the stain to the mark 11. The fluid is thoroughly mixed with the stain by shaking for from three to five minutes, the first two or three drops are discarded, the next drop is put on the slide and the number of leucocytes per c.mm. estimated. To do this the whole sixteen sets of sixteen squares must be counted, and to get the number per c.mm. the total number has to be multiplied by 11 and divided by 32, *e.g.* ($X = 11a/32 =$ approximately $a/3$). It is advisable to count from two to three slides so as to get an average. By using such a

method as this, it is possible to form a definite standard, and thus one person's work can be compared with another's. Another advantage of this method is that it can be much more quickly performed than the older smear method. The standards which I have found satisfactory are the following:—

1. Less than 5 cells	per	c.mm.	-	-	negative.
2. From 5-10	„	„	-	-	doubtful.
3. Above 10	„	„	-	-	pleocytosis.

Fuchs and Rosenthal have stated that they were able to make a differential cell count with the methyl-violet stain at the same time as they made the quantitative estimation. Personally I have not been able to make a satisfactory differential cell count with their method; it is true that lymphocytes, large mononuclear leucocytes, and polymorph leucocytes are readily distinguished, but plasma and other types of cells cannot be satisfactorily recognised. Cornell (6) claims that by using Unna's polychrome methylene blue stain he has been able to make a good differential count at the same time as he has made the quantitative estimation. The stain is used undiluted as furnished by Grübler & Co., and the only difference from the Fuchs and Rosenthal method is that the stain is drawn up to the mark 0·5 on the pipette, thus more closely approximating the ratio $a/3$.

In 1907 Alzheimer (7) perfected a method for differential cell estimation of the cerebro-spinal fluid which as yet has been little used. The method is easily carried out and consists of centrifuging 3 or 4 c.c. cerebro-spinal fluid with double the quantity of alcohol, 96 per cent., for one hour. The plug formed is hardened by means of pouring in absolute alcohol, then absolute alcohol and ether, and then ether, each for a variable number of hours depending upon the thickness of the plug. The plug is next loosened with a fine platinum needle, embedded in celloidin, and sections cut at 15 μ. The cut sections may be stained with Pappenheim's pyronin-methyl green, or with Unna's polychrome methylene blue. This method has been used particularly by Rehm (8), Cotton and Ayer (9), and Hough (10).

Acting on the assumption that I would get thinner sections and therefore better defined cell types I decided to use this method with paraffin embedding, but have to admit that it has been a

complete failure. The paraffin technique is more difficult than the celloidin, and I have found it absolutely impossible to get the cells to stain properly for differential purposes. I would therefore strongly advise anyone who contemplates using this method to employ the celloidin technique as recommended by Alzheimer.

Rehm, as the result of his work, has stated that gitter cells are almost typical for general paralysis, but that they may be found in certain cases of brain syphilis, and in cases of tuberculous and purulent meningitis. In addition plasma cells are said to occur in cases of general paralysis in greater numbers than in any other affections.

Proteid Reactions.—Proteid is present in normal cerebro-spinal fluid in small amounts. In inflammatory conditions, especially of the meninges, and in metasyphilitic conditions the amount is almost always found to be considerably increased. It has been estimated by quantitative methods that in cases of general paralysis the amount is commonly four times greater than normal.

Nitric Acid Test.—Jones (11) has stated that sufficiently accurate information in regard to an increase of proteid may be obtained by means of this test. The test is performed as Heller's nitric acid test is performed with urine. One estimates whether the cerebro-spinal fluid is normal or abnormal according to the thickness of the white ring which forms at the junction of the two fluids. In syphilitic and metasyphilitic affections of the nervous system the ring obtained is usually much thicker than with normal cerebro-spinal fluid, but as far as my experience goes, the test is an unsatisfactory one, and does not help one at all in differential diagnosis.

Within recent years other tests have been introduced which are much more delicate than the above one, and which demonstrate a special kind of proteid called globulin. The three tests which I have used are: (1) Nonne-Apelt, (2) Ross Jones, (3) Noguchi's butyric acid test.

Nonne-Apelt Test.—This test consists in mixing together by shaking equal quantities of a supersaturated solution of ammonium sulphate and cerebro-spinal fluid. A case is said to give a positive reaction should a cloudiness arise within three minutes (Phase 1). Nonne and Apelt found this reaction positive in all cases of general paralysis examined by them.

Ross-Jones Test (12).—Ross and Jones modified the Nonne-Apelt test by performing it as Heller's nitric acid is done. 2 c.cm. of a saturated solution of ammonium sulphate are placed at the bottom of a test tube, and 1 c.cm. of cerebro-spinal fluid is allowed to gently flow on the top. The formation of a ring at the junction of the two fluids constitutes a positive reaction. The ring is described as "clear cut, thin, greyish white, and has the thickness of a thin piece of paper. It should form within three minutes, and within half an hour it may be observed that the surface of the ring shows a delicate mesh appearance resembling a cob-web."

Noguchi's (13) *Butyric Acid Test.*—This test consists in mixing 0·1 or 0·2 c.c. cerebro-spinal fluid with 0·5 c.c. 10 per cent. butyric acid in physiological salt solution, and boiling; then add 0·1 c.c. normal sodium hydroxide solution, and boil the whole again for a few seconds.

The presence of an increased quantity of globulin is indicated by the appearance of a granular or flocculent precipitate which gradually settles to the bottom of the tube, beneath a clear supernatant fluid. In attaining the reaction the time period should not exceed two hours. In all these proteid reactions one should be careful to have the fluid free from blood, otherwise the results are invalidated.

Of all these tests the one I favour most is the Ross-Jones. Its value especially consists in the fact that it is much easier to read than either of the other two. Turner (14) has also carried out comparative tests with the above methods, and likewise emphasises the delicacy of the Ross-Jones reaction.

In a recent article Dr Winifred Muirhead (15) has stated that there appears to be no true relationship between excess of globulin in the spinal fluid and an increase of lymphocytes. My results in the 118 cases examined do not seem to bear out this statement. It is true that in seven cases where a pleocytosis has been present the globulin reactions have been negative, but on the other hand I have never obtained positive globulin reactions along with an absence of pathological increase of lymphocytes.

Wassermann Reaction.—In 1906 Wassermann, Neisser, and Bruck first applied the Bordet-Gengou phenomenon of complement fixation as a test for the diagnosis of syphilis. Since that time various modifications of the original method have been used; the

one which specially concerns us in this paper is that of Noguchi. Before going on to speak of Noguchi's modification perhaps it would be as well to try to explain as simply and in as few words as possible what we mean by the terms hæmolysis and complement fixation.

Hæmolysis is the power which many different substances possess when brought into contact with red blood corpuscles of dissolving these red blood corpuscles, and setting free their hæmoglobin. If for instance a rabbit's serum is brought into contact with the red blood corpuscles of a sheep a certain amount of hæmolysis will take place. Much more hæmolysis, however, will take place if a rabbit is immunised by injecting gradually increasing doses of sheep's corpuscles. This is due to the fact that a substance is formed in the rabbit's serum which goes by the name of immune body, or hæmolytic amboceptor, *e.g.*, anti-sheep or anti-human amboceptor as the case may be. Erythrocytes + amboceptor + complement form what is called a hæmolytic system, and when all join together hæmolysis takes place. If erythrocytes and amboceptor are present, and complement is either absent or insufficient no hæmolysis can take place.

Bordet and Gengou utilised the phenomenon of hæmolysis to show that a union actually can occur between the three components of a bacteriolytic system, and Fox (16) describes this as follows: "The three components of a bacteriolytic system, such as typhoid, bacilli + typhoid anti-bodies (serum of patient to be tested) + complement, are placed in a test tube, and incubated at 37° C. for half an hour to allow them to unite. To the same tube are then added two elements of a hæmolytic system, namely hæmolytic amboceptor and sheep's corpuscles, and the mixture is again placed on the incubator. If now there has been an actual union of the first three substances, that is, if complement has been fixed or used up by uniting with the other two substances, there will be no complement left to unite with the other two parts of the hæmolytic system, and consequently no hæmolysis will occur = positive reaction. If, on the other hand, no union of the first three substances had occurred, complement would be available to unite with the other two parts of the hæmolytic system, and consequently hæmolysis will take place = negative reaction."

The Wassermann reaction for syphilis is similar to the above reaction, extracts of syphilitic livers, alcoholic extracts of certain

normal organs, or crude tissue-lecithin preparations acting analogously with typhoid bacilli.

Noguchi's (17) modification of the Wassermann reaction consists essentially in the fact that an anti-human is used instead of an anti-sheep hæmolytic amboceptor. Noguchi was led to introduce this modification because he recognised that human serum contains substances capable of dissolving the red blood corpuscles of the sheep, and therefore a certain number of undoubtedly luetic sera would, using the original Wassermann reaction, be bound to give negative results, hæmolysis having taken place.

Furthermore Noguchi found it possible to prepare antigen, anti-human hæmolytic amboceptor, and complement in the form of reagent papers which would remain stable so long as they were kept perfectly dry.

This system of Noguchi's has been very little used outside America, and in many quarters has been very adversely criticised. Most American workers, however, speak highly of the method.

Kaplan (18), who has worked extensively with both the original Wassermann reaction and the Noguchi modification, has stated that he has obtained the most satisfactory results by using both methods. The 8 or 9 per cent. negative results which he got by using the Wassermann reaction were reduced to 1 or 1·5 per cent. by using both methods. He also found that the Noguchi test, besides giving a positive reaction in all luetic sera, gave a positive reaction with 7 per cent. negative sera, but by using both methods the error was rendered unimportant.

Craig (19) adopted the Noguchi system after careful consideration of the Wassermann test and other modifications, and has obtained most favourable results with it. He states that wherever he did obtain anomalous results with it he found that the fault lay in some quantitative error made by himself, and was not inherent in the method. In 391 cases of lues or suspected lues which he examined, 80 per cent. gave positive results; in 70 healthy individuals in whom lues could be positively excluded a negative result was obtained in each case. Surely very striking evidence in favour of the Noguchi system!

Fox (20) examined 15 cases of leprosy both with the original Wassermann reaction and Noguchi's modification, and obtained identical results in all the cases.

Other workers who have reported favourable results with the

Noguchi system are Corson White and Ludlum (21), Phelps (22), Groat (23), Rosanoff and Wiseman (24), and Moore (25).

My own investigations have led me to the belief that the Noguchi modification of the Wassermann reaction is a reliable test in the diagnosis of syphilis, and that it is simpler to perform and more delicate than the original Wassermann reaction.

In performing the test I have always used fresh guinea-pig serum for complement, amboceptor in the form of reagent papers, and antigen partly liquid and partly in the form of reagent papers. There seems to be no manner of doubt that amboceptor, and antigen in the form of reagent papers act just as well as liquid reagents, and are much more stable. My best thanks are due to Dr Noguchi of the Rockefeller Institute for initial tuition in performing the reaction, and for kindly supplying me with most of the antigen and amboceptor which I have used.

General Paralysis.

Belonging to this group are 53 cases, in 18 of which the diagnosis of general paralysis has been confirmed by autopsy. A great many of these cases were punctured several times, but very uniform results were obtained. Briefly stated, my results with this group of cases have been as follows: A pleocytosis was present in 100 per cent., the globulin reactions were present in 98 per cent., with the blood serum Noguchi's modification of the Wassermann reaction was positive in 97 per cent., and with the cerebro-spinal fluid in 90 per cent.

These results correspond closely with those of other workers who have used the original Wassermann reaction. With the blood serum of general paralytics, Boas, Lesser, and Plaut have each obtained 100 per cent. positive results; Stertz obtained 95·5 per cent. positive; Raviart, Breton, and Petit, 93 per cent. positive; Ledermann, 87 per cent. positive. With the cerebro-spinal fluid, Morganroth and Stertz found 100 per cent. positive (only eight cases examined); Marie, Levaditi, and Yamanouchi, 93 per cent. positive; Plaut and Nonne each 90 per cent. positive; Smith and Candler, 92·1 per cent. positive; Wassermann and Plaut, 88 per cent. positive.

Two of my cases in which the lumbar puncture findings were somewhat anomalous may be briefly referred to.

CASE 20.—A man, 44 years old, who was admitted to the clinical service of the Psychiatric Institute on 29th June 1910. He denied having had any venereal infection. He had always been exceedingly alcoholic, and in 1905 had had an attack of delirium tremens. In 1906, following a period of heavy drinking, he had an unconscious spell. He seems to have worked efficiently up to March 1910, when again, following a period of excessive drinking, he had a whole series of convulsive spells, and was admitted to Bellevue Hospital in a comatose condition. He improved for a time, but then suddenly in June 1910 he became euphoric and grandiose. When admitted he was euphoric, self-assertive, and grandiose, said that he had earned $7,000 per year (false) and boasted about his business capacity. During his hospital residence he has continued to exhibit the same grandiose trend, and has no realisation of his condition. His memory, both for recent and remote events, is well preserved.

Physically his pupils are slightly irregular, but react satisfactorily to light and on accommodation; speech shows sticking and slurring; writing shows omission of letters; tremor of tongue; tendon reflexes about normal, equal on the two sides. The examination of the cerebro-spinal fluid showed a cell count of 5·51 cells per c.mm.; globulin reactions were negative; Wassermann (Noguchi's) reaction was positive with the blood serum, and negative with the cerebro-spinal fluid.

Such a case as this might give rise in certain minds to doubts in regard to the proper diagnosis. Apart from the fact that the convulsive seizures seem to have been in close association with the periods of alcoholism, we have no definite features which would tend to bring the case within the sphere of those mental disorders which have alcohol as their etiological factor. The striking features to me have been the euphoria, the somewhat grandiose trend, the fact that he has no realisation of his condition, associated with speech and writing defect and irregular pupils. These features all point to the case being one of general paralysis. Owing, however, to the inconclusive findings in the cerebro-spinal fluid this is a case which, during life, must remain somewhat in doubt.

CASE 40.—A man, 64 years old, who was admitted to the clinical service of the Psychiatric Institute on 8th October 1909. He had had syphilis when about 35 years old. In 1897 he became

forgetful, would ask the same question over and over again, but later settled down into a complacent, apathetic state. In 1907 he complained of pain in his legs, and it was noticed that he staggered in walking. During his hospital residence he has shown a mild euphoria, marked memory defect both for recent and remote events, poor orientation for time and place, and no realisation of his condition. Physically he presents Argyll Robertson pupils; absent knee and Achilles jerks; floppy gait, Romberg's sign; his writing shows tremor with occasional transplantation, omission and addition of letters; speech shows no disorder; tremor of tongue, facial muscles, and hands. There is no peripheral arteriosclerosis.

The examination of the cerebro-spinal fluid showed ten cells per c.mm. positive globulin reactions, a negative Wassermann (Noguchi) reaction both with the blood serum and cerebro-spinal fluid.

This case again presents certain difficulties in regard to diagnosis. I have been led to make the diagnosis of general paralysis owing to the association of a euphoric mental state with the physical signs above enumerated. One might argue that the physical signs, with the exception perhaps of the writing defect, show nothing not found in cases of tabes dorsalis, and that the mental condition could be explained on the basis of a senile disorder. It is a good rule, however, to try to explain a disorder on one basis, and at present I feel that the main weight of evidence is in favour of general paralysis.

Cerebral Syphilis.

Twenty cases are included in this group. In 19 of these cases a pleocytosis was obtained; in 15 out of 19 cases a positive globulin reaction was obtained; 16 cases were examined by the Wassermann (Noguchi) reaction, of which 94 per cent. gave a positive reaction with the blood serum, but only 50 per cent. gave a positive reaction with the cerebro-spinal fluid. The findings in regard to the Wassermann reaction in these cases are extremely interesting, and confirm to a certain extent the results of Plaut, Nonne, and those others who have asserted that a positive Wassermann reaction is rarely found in the cerebro-spinal fluid of cases of cerebral syphilis. I have already in a former paper published in this *Review* in May

1911 emphasised some of the difficulties frequently met with in trying to differentiate cases of general paralysis from cerebral syphilis, but when we know that a negative Wassermann reaction in the cerebro-spinal fluid of a patient who has a pleocytosis, positive globulin reactions, and a positive Wassermann reaction in the blood serum points much more to cerebral syphilis than to general paralysis, then some of these difficulties may be obviated. I have now had several cases in which the diagnosis of cerebral syphilis was made even although a positive Wassermann reaction was obtained with the cerebro-spinal fluid, but later at autopsy these cases proved to be cases of general paralysis. On the other hand, in several very acute cases of cerebral syphilis about which there can be no manner of doubt in regard to the diagnosis the Wassermann reaction has been just as strong with the cerebro-spinal fluid as with the blood serum. One such case has come to autopsy, and the diagnosis of cerebral syphilis was confirmed. According to my findings it is the non-progressive, long-standing cases of cerebral syphilis or those which have received a large amount of anti-syphilitic treatment which are especially prone to give a negative Wassermann reaction in the cerebro-spinal fluid.

Case 56, which gave a negative cell count, negative globulin reactions, a doubtful reaction with the blood serum, and a negative reaction with the cerebro-spinal fluid, was that of a young man, 26 years, who eighteen months after the primary infection suddenly developed a right-sided hemiplegia with motor aphasia. He had been treated extensively with anti-syphilitic remedies, and during his hospital residence showed no signs of an active syphilitic process.

Similarly cases 57 and 68, which each gave a moderate cell count, negative globulin reactions, positive Wassermann reaction with the blood serum, and a negative reaction with the cerebro-spinal fluid, were cases which had received anti-syphilitic treatment, and had been non-progressive for several years.

Case 71 is rather extraordinary in that the cell count showed 52·59 cells per c.mm., a partial butyric acid reaction, negative ammonium sulphate reaction, and negative Wassermann reaction both with the blood serum and cerebro-spinal fluid. Clinically the case is one of ten years' standing, and is undoubtedly syphilitic in origin.

Psychoses with other Nervous Disorders.

None of the different types of cases belonging to this group are numerous enough to warrant one in making any definite statements in regard to them, and will only be briefly referred to.

The cases of tabes dorsalis associated with a psychosis not paralytic in nature are 5 in number. Four of these gave a pleocytosis and positive globulin reactions; 3 cases gave a positive, 1 a doubtful, and 1 a negative Wassermann reaction with the blood serum; 2 cases gave a positive Wassermann reaction with the cerebro-spinal fluid, and 3 a negative.

The case of disseminated sclerosis gave a cell count of twelve cells per c.mm., positive globulin reactions, and a negative Wassermann reaction both with the blood serum and cerebro-spinal fluid.

One of the brain tumour cases which came to autopsy gave positive reactions throughout. His case has been already referred to and discussed in the May 1911 number of this *Review*.

One of the cases of arterio-sclerotic brain disease, punctured during a convulsive seizure, gave a cell count of 28 cells per c.mm., negative globulin reactions, a positive Wassermann reaction with the blood serum, and negative reaction with the cerebro-spinal fluid.

Alcoholic Psychosis.

All the cases, 14, belonging to this group gave, with three exceptions, negative results throughout.

Case 83, which had a cell count of 18·21 cells per c.mm., negative globulin reactions, and a partially positive Wassermann reaction, both with the blood serum and cerebro-spinal fluid, was a case whose diagnosis is doubtful. On admission he presented a typical alcoholic hallucinosis with fear reaction. During his stay in hospital he showed a variable emotional condition, but on the whole was facile and contented, and a splendid worker. Both his speech and writing were slightly disordered. He has been able to leave the hospital and for about eight months has been working efficiently. It is a case in which it is difficult to rule out general paralysis, but in the meantime the majority of the symptoms seem to justify us in including it in the alcoholic group.

Cases 80 and 87 gave a positive reaction with the blood serum, but both showed signs of an old syphilitic infection, and one of them admitted that he had had syphilis.

Functional Psychoses.

Eleven cases are included in this group, comprising cases of dementia præcox, manic-depressive insanity, and constitutional inferiority. In all negative results were found throughout.

Undiagnosed Cases.

These cases are so problematical in nature that it would lead one too far to discuss them.

Conclusions.

1. A cytological, chemical, and serological examination of the cerebro-spinal fluid and blood serum is essential in the diagnosis of organic types of mental disease.

2. The Fuchs-Rosenthal method of cell counting is the quickest and most accurate, and allows comparative results; for differential cell-counting the method devised by Alzheimer offers the greatest possibilities.

3. The Ross-Jones test for the recognition of globulin is the most satisfactory owing to the fact that it is the easiest to read, and is just as accurate as either the butyric acid test of Noguchi or the Nonne-Apelt test.

4. The Noguchi modification of the Wassermann reaction is a reliable test in the diagnosis of syphilis; the results obtained by it closely correspond to those of other workers who have used the original Wassermann reaction.

5. In general paralysis the characteristic findings are pleocytosis, positive globulin reactions, and a positive Wassermann reaction both with the blood serum and cerebro-spinal fluid.

6. Cases of cerebral syphilis frequently give a negative Wassermann reaction with the cerebro-spinal fluid—a point of considerable importance in differentiating between general paralysis and cerebral syphilis. This negative reaction occurs particularly in non-progressive cases, or in cases which have received a large amount of anti-syphilitic treatment.

7. Cases of alcoholic insanity, dementia præcox, &c., give uniformly negative results, unless the person has had a syphilitic infection.

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No.	Name.	Diagnosis.	Character of Fluid.	Pressure.	Reaction.	Cells per c.mm.	Proteid Reactions.			Wassermann Reaction.	
							Nitric Acid.	Globulin Tests.		Blood Serum.	Cerebro Spinal Fluid.
								Butyric Acid.	Ammonium Sulphate.		
1	J. G.	General paralysis	Clear	Moderate	Alkaline	104·84	Thin ring	+	+	+	−
2	F. W.	,, ,,	,,	High	,,	10·31	Moderate ring	+	+	+	+
3	J. M'A.	,, ,,	,,	Moderate	,,	20·96	,,	+	+	+	+
4	R. P.	,, ,,	,,	,,	,,	20·96	,,	+	+	+	+
5	J. N.	,, ,,	Slight bloody	Low	,,	41·00	Thick ring	+	+	+	+
6	R. T.	,, ,,	Clear	High	,,	57·06	,,	+	+	+	+
7	E. S.	,, ,,	,,	,,	,,	14·43	,,	+	+	+	+
8	A. P.	,, ,,	,,	,,	,,	37·84	,,	+	+	+	+
9	G. R.	,, ,,	,,	Moderate	,,	56·71	,,	+	+	+	+
10	A. R.	,, ,,	,,	High	,,	30·25	,,	+	+	+	+
11	J. M.	,, ,,	,,	,,	,,	33·00	,,	+	+	+	+
12	W. P.	,, ,,	,,	,,	,,	48·46	,,	+	+	+	+
13	F. S.	,, ,,	,,	,,	,,	13·87	,,	+	+	+	+
14	J. R.	,, ,,	,,	Low	,,	35·31	,,	+	+	+	+
15	S. J.	,, ,,	,,	Moderate	,,	65·31	,,	+	+	+	+
16	Wat	,, ,,	,,	,,	,,	33·00	,,	+	+	+	+
17	E. M.	,, ,,	,,	,,	,,	147·15	,,	+	+	+	+
18	C. E. W.	,, ,,	,,	,,	,,	15·46	,,	+	+	+	+
19	M. H.	,, ,,	,,	,,	,,	20·62	Moderate ring	+	+	+	−
20	F. R.	,, ,,	,,	Low	,,	5·15	Thin ring	−	−	+	−
21	C. H.	,, ,,	,,	Moderate	,,	54·65	Moderate ring	+	+	+	+
22	S. B.	,, ,,	,,	High	,,	28·53	Thick ring	+	+	+	+
23	A. S.	,, ,,	,,	Low	,,	39·18	,,	+	+	+	+
24	G. P.	,, ,,	,,	High	,,	23·37	,,	+	+	+	+
25	J. M'K.	,, ,,	Slight bloody	Moderate	,,	159·00	,,	+	+	+	+
26	J. T.	,, ,,	Clear	,,	,,	69·78	,,	+	+	+	+
27	S. L.	,, ,,	,,	,,	,,	173·25	,,	+	+	+	+

| | | |

No.	Name.	Diagnosis.	Character of Fluid.	Pressure.	Reaction.	Cells per c.mm.	Proteid Reactions.			Wassermann Reaction.	
							Nitric Acid.	Globulin Tests.		Blood Serum.	Cerebro Spinal Fluid.
								Butyric Acid.	Ammonium Sulphate.		
64	J. M'D.	Cerebral syphilis	Slight bloody	Moderate	Alkaline	8·00	Moderate ring	Slight +	+	+	−
65	R. K.	,, ,,	Clear	,,	,,	27·60	Thick ring	+	+	+	+
66	D. A.	,, ,,	,,	,,	,,	105·87	,,	+	+	+	+
67	M. B.	,, ,,	,,	,,	,,	220·00	,,	+	+	+	±
68	W. E. J.	,, ,,	,,	,,	,,	7·21	Thin ring	±	−	+	−
69	F. J.	,, ,,	,,	,,	,,	15·21	Moderate ring	+	+	+	−
70	C. F. S.	,, ,,	,,	,,	,,	275·00	Thick ring	+	+	+	+
71	N. G. F.	,, ,,	,,	,,	,,	52·59	Thin ring	±	−	−	−
72	J. B.	,, ,,	,,	...	...	46·00	...	+	+	...	...
73	W. V.	,, ,,	,,	Moderate	Alkaline	24·75	Thin ring	Slight +	Slight +	+	−
74	Mrs R.	Alcoholic psychosis	,,	Low	,,	1·52	,,	−	−	...	...
75	F. W.	,, ,,	,,	Moderate	,,	5·15	,,	−	−	...	...
76	J. S.	,, ,,	,,	,,	,,	2·75	,,	−	−	...	...
77	J. L. C.	,, ,,	,,	Low	,,	2·06	,,	−	−	−	−
78	E. M'C.	,, ,,	,,	Moderate	,,	2·40	,,	−	−	−	−
79	J. D.	,, ,,	,,	High	,,	3·08	,,	−	−	−	−
80	M. M'G.	,, ,,	,,	Moderate	,,	3·75	,,	−	−	+	−
81	C. M.	,, ,,	,,	,,	,,	1·03	,,	−	−	−	−
82	T. S.	,, ,,	,,	Low	,,	2·28	,,	−	−	−	−
83	E. K.	,, ,,	,,	High	,,	18·21	,,	−	−	±	±
84	Mrs S.	,, ,,	,,	Low	,,	2·00	,,	−	−	...	...
85	F. S.	,, ,,	,,	,,	,,	4·14	,,	−	−	−	−
86	H. D.	,, ,,	,,	Moderate	,,	5·15	,,	−	−	...	...
87	W. P. B.	,, ,,	,,	,,	,,	4·46	,,	−	−	+	−
88	P. D.	Tabes dorsalis	,,	...	...	40·00	Thick ring	+	+	+	+
89	A. D.	,, ,,	,,	Low	Alkaline	145·75	Thin ring	+	+	+	−
90	J. P.	,, ,,	,,	High	,,	6·18	Thick ring	+	+	+	−

91	C. H.	"	"	"	"	"	11·34	Thin ring	+	+	+	+	+	+	+	+	+
92	H. R.	"	"	"	"	"	1·50	"	−	−	±	−	−	−	−	−	−
93	H. C.	Disseminated sclerosis	"	"	"	"	12·00	...	+	+	−	−	−	−	−	−	−
94	M. S.	Brain tumour	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	H. B.	" (?)	Clear	...	Low	Alkaline	1·03	Thin ring	−	−	+	−	−	−	−	−	−
96	H. W.	"	"	"	Moderate	"	107·90	Thick ring	+	+	+	+	+	+	+	+	+
97	J. D.	Aphasia due to arterio-sclerosis	"	"	High	"	0·68	Thin ring	−	−	−	−	−	−	−	−	−
98	E. G. S.	"	Slight bloody	"	Moderate	"	5·00	"	−	−	±	−	−	−	−	−	−
99	B. D.	"	Clear	"	High	"	28·18	"	−	−	+	−	−	−	−	−	−
100	W. B.	"	"	"	Moderate	"	4·12	"	−	−	+	−	−	−	−	−	−
101	B.	"	"	...	...	"	2·00	...	Slight +	−	−	−	−	−	−	−	−
102	A. K.	Senile dementia	Clear	"	Moderate	"	2·75	Thin ring	−	−	−	−	−	−	−	−	−
103	C. J. K.	Spastic paraplegia	"	"	High	"	1·03	"	−	−	+	−	−	−	−	−	−
104	A. R.	Dementia præcox	"	"	"	"	1·50	"	−	−	−	−	−	−	−	−	−
105	C. L.	"	"	"	Moderate	"	3·09	"	−	−	−	−	−	−	−	−	−
106	J. B.	"	"	"	High	"	2·75	"	−	−	−	−	−	−	−	−	−
107	J. P. H.	"	"	"	Moderate	"	2·41	"	−	−	−	−	−	−	−	−	−
108	Mrs B.	Manic-depressive	"	"	Low	"	...	"	...	...	...	...	...	...	...	...	...
109	H. A. W.	"	"	"	"	"	1·50	"	−	−	−	−	−	−	−	−	−
110	Mrs O.	Depression	"	"	"	"	3·45	"	−	−	−	−	−	−	−	−	−
111	Mrs M.	"	"	"	"	"	1·06	"	−	−	−	−	−	−	−	−	−
112	O. K.	Constitutional inferior	"	"	High	"	1·60	"	−	−	−	−	−	−	−	−	−
113	H.	"	"	"	Moderate	"	2·75	"	−	−	−	−	−	−	−	−	−
114	F. G.	"	"	"	"	"	1·37	"	−	−	−	−	−	−	−	−	−
115	M. K.	Undiagnosed	"	"	"	"	11·45	Thick ring	+	+	+	+	+	+	+	+	+
116	J. H.	"	"	"	High	Alkaline	16·15	Thin ring	−	−	±	−	−	−	−	−	−
117	F. L.	"	"	"	"	"	2·06	"	−	−	−	−	−	−	−	−	−
118	M. B.	"	"	"	Low	"	10·65	"	−	−	+	−	−	−	−	−	−

Abstracts

ANATOMY.

NOTES ON THE TROCHLEAR AND OCULOMOTOR NUCLEI
(130) **AND THE TROCHLEAR ROOT IN THE LOWER VERTEBRATES.** W. G. HUET, *Konin. Akad. van Wetensch. te Amsterdam*, March 23, 1911.

THE third nucleus in the lower vertebrates occupies a more constant place in the longitudinal axis of the brain than the fourth nucleus. The oculomotor nucleus of the teleosts, however, undergoes a considerable displacement in a dorso-ventral direction, which agrees with the ventral displacement of the abducens in these animals.

The trochlear nucleus in the lower vertebrates exhibits still greater differences in its position with regard to the longitudinal axis of the brain. In petromyzon it lies at a great distance behind the third nucleus, even behind its own root-entrance on the level of the trigeminus root-entrance. Moreover, it lies more dorsally, above the aqueduct in the velum. In the selachii, it lies at a great distance from the trigeminus root and close to the third nucleus passing into the latter. In selache it lies under the aqueduct and partly behind and partly in front of the fourth root-entrance. In teleosts it lies entirely in front of the fourth root-entrance. In some teleosts the fourth root is split into two parts before decussation by the passing through of the tr. cerebello-mesencephalicus, the part lying outside that bundle being drawn forward by the frontal growth of the velum that grows out to the valvula cerebelli, in consequence of which it decussates more frontally and then runs caudally between the valvula and its connection with the tectum. A. NINIAN BRUCE.

ON THE HISTOLOGICAL STRUCTURE OF THE RETINA OF
(131) **THE LATERAL EYES OF SPHENODON PUNCTATUS, WITH SPECIAL REFERENCE TO THE SENSE CELLS.** FREDA BAGE, *Quart. Jour. Micr. Sci.*, Vol. 57, pt. 3, p. 305.

IN this research the author has utilised Prof. A. Dendy's valuable histological collection. She supports Kallius' view that there is a definite macula with a fovea centralis in *Sphenodon*. The sense epithelium, as in all reptilia, is composed entirely of cones. These

elements may be as much as 50 μ in length (minimum 37 μ), and are thus very large. The peculiar fatty globules ("oil globules") which are such a characteristic feature of the cones of lower vertebrates are very much in evidence in this animal. The structures termed ellipsoids and paraboloids are also clearly shown, the order of arrangement of these from the external limiting membrane outwards being—paraboloid, ellipsoid and oil globule. Three types of cones are described, viz.: (1) ordinary single cones, (2) small single cones, (3) double cones, (*a*) near cones, (*b*) far cones. In the fovea only cones of the first type are present, whilst in the remainder of the retina they constitute the most numerous of the visual elements. The small single cones are regarded as young sense cells forcing their way between the others, a condition which Bernard and the writer of this abstract have previously described in Amphibian retinæ. The two constituents of the double cones of *Sphenodon* have a structure similar to that of the corresponding elements described in Amphibia by Bernard and the writer of this abstract. Each constituent of the double cones has a distinct nucleus, and not one common to both, as was described by Schultze. JOHN CAMERON.

PHYSIOLOGY.

THE RESPONSE OF NORMAL AND ABNORMAL MUSCLE TO
(132) **LEDUC'S INTERRUPTED CURRENT.** OTTO MAY, *Brain*, Vol. xxxiv., parts 2 and 3, 1912, p. 272.

LEDUC'S current consists of a galvanic current, interrupted at a frequency of 20 to 200 per second, and with the ratio of "make" to "break" in each period capable of being varied from 1:99 to 70:30. In this paper the response of cat's muscle to this current is described under the following conditions:—(1) normal, (2) curarised, (3) exhausted and dying, (4) in various stages of degeneration following nerve section. It is suggested that the results here described are likely to be of use in the clinical examination of muscles, and to give a more exact measure of their functional condition than the methods at present in vogue.

AUTHOR'S ABSTRACT.

A STUDY OF CERTAIN TONIC AND REFLEX NERVOUS IM-
(133) **PULSES AS FACTORS IN PARATHYROID TETANY.** H. J. MUSTARD, *Amer. Journ. Physiol.*, Vol. xxix., No. III., Jan. 1, 1912, p. 311.

THE rate of development and the final degree of the increased excitability of the motor neurones following parathyroidectomy in the dog are not appreciably influenced by ablation of the

cerebral motor cortex, spinal transection, or section of the dorsal nerve roots. The increased excitability is therefore probably due primarily to some direct chemical action on the motor neurones.

The course of the parathyroid tetany is not appreciably influenced by ablation of the motor cerebral cortex, or by rendering a limb apastic through section of its afferent nerves.

As the epileptic spasms or tetanic attacks following removal of the parathyroid glands do not develop posterior to the spinal transection, it would seem that the actual tetany depends, not only on the local increase of motor excitability in the spinal cord, but also upon nervous connections with some region of the encephalon below the cerebral cortex. A. NINIAN BRUCE.

THE PHYSIOLOGICAL INFLUENCE OF OZONE. LEONARD HILL (134) and MARTIN FLACK, *Proc. Roy. Soc.*, Series B, Vol. 84, Dec. 28, 1911, p. 404.

OZONE is a powerful deodoriser. It masks rather than destroys smells. Its practical value in relieving the nervous system from the depressant influence of an unpleasant odour is none the less for this. The beneficial effect of ozone obtained by the ozone ventilating systems is to be explained by its effect on the nervous system. By exciting the olfactory nerves and those of the respiratory tract and skin, it may relieve the monotony of close air. There is no harm in breathing weak concentrations of ozone, such as can be scarcely sensed by a keen sense of smell. A concentration as little as one per million is irritating to the respiratory tract. Exposure for two hours to a concentration of 15 to 20 per million is not without risk to life, although there is no risk from inhaling ozone so long as an outlet for the instinctive escape from its influence is open, ample warning being given by the cough and headache which its irritative effect produces.

A. NINIAN BRUCE.

THE DESTRUCTION OF ADRENALIN BY SPINAL FLUID. (135) MELTZER, *Proc. Soc. Exp. Biol. and Med.*, Vol. ix., No. 2, Dec. 20, 1911, p. 27.

THE rise of blood pressure after an intravenous injection of adrenalin passes off in a few minutes no matter how large the injected dose has been. None of the adrenalin is found to persist in the blood. Oliver and Schäfer have shown that the blood does not destroy adrenalin. It is here stated that normal spinal fluid is capable of destroying adrenalin, and that this property appears to be increased in certain pathological conditions.

A. NINIAN BRUCE.

PATHOLOGY.

THE PATHOLOGY OF THE NERVE ROOTS. (La pathologie radiculaire.) J. DÉJÉRINE and A. BAUDOUIN, *Paris Méd.*, Oct. 1911.
(136)

THE term "radiculaire" refers to the intra-dural portion of the nerve root and the extra-dural part as far as the formation of a plexus. The peripheral distribution of the roots must be the basis of the diagnosis, this being especially important in lesions of the roots of the brachial plexus (a useful *résumé* of the latter is given). Radicular affections may be due either to compression or intrinsic disease. Among the less common causes of compression in the adult tuberculous pachymeningitis is liable to be overlooked. The radiculites themselves may be sudden or insidious in their onset; the former usually accompanying acute meningeal affections, but being present in the "neuritic" form of poliomyelitis acuta anterior; the latter usually are syphilitic and are very much more important from the neurologist's standpoint. The symptoms and signs are divisible into two stages: (1) that of pain, hyperæsthesia, and sometimes exaggerated reflexes, and (2) the later stage of destruction with anæsthesia, paralysis, and abolished reflexes in the area supplied by the affected roots. The clinical type may be a monoplegia (the most frequent), a superior or inferior paraplegia, and one case described by Déjérine presented double Aran-Duchenne muscular atrophy, and paralysis of the antero-external muscles of both legs with talipes equino-varus: the same authority has long insisted on the importance of radiculitis in producing sciatica.

A diagnosis can seldom be made in the early stages when pain is the only symptom. Later the distinction from peripheral neuritis has to be made, and this may be difficult owing to the fact that the two lesions may succeed one another. Antisyphilitic treatment gives very good results in many cases.

A. L. TAYLOR.

CLINICAL NEUROLOGY.

THE TENDO ACHILLIS JERK. A. F. HERTZ and W. JOHNSON, *Guy's Hosp.* lxv., *Rep.*, 1911, p. 45.
(137)

THE writers found the tendo Achillis jerks present on both sides in 81 out of 82 healthy medical students, the exception being a man who had probably had nterior poliomyelitis in childhood.

In 36 cases of tabes the jerk was absent in every case on both sides except in one in whom it was present on the right. In 8 cases of tabes in which the tendo Achillis jerks were absent, the knee-jerks were present. In 11 cases of peripheral neuritis the tendo Achillis jerks were absent, although the knee-jerks were present. In 8, the neuritis was probably due to alcohol, in 1 it was diabetic, and 2 were of unknown cause. In 5 cases of sciatica, the tendo Achillis jerk was absent on the affected side. In 3 cases of acute poliomyelitis one tendo Achillis jerk was absent, though the knee-jerks were unaffected. J. D. ROLLESTON.

BABINSKI'S "SECOND SIGN." COMBINED MOVEMENT OF THE
(138) **TRUNK AND PELVIS.** A. F. HERTZ, *Guy's Hosp. Rep.*, 1911, lxv., p. 54.

IN organic hemiplegia, when the patient is able to sit up, the paralysed leg rises higher than the healthy limb. In hysterical paralysis the paralysed leg remains flat on the ground, both on sitting up and on lying down. Hertz confirms Babinski's statements as to the value of the sign of the combined movement of the trunk and pelvis, having rarely failed to find it in an organic upper neurone paralysis of one leg, and having never seen it in hysterical hemiplegia. Five illustrative cases are recorded in which the diagnosis of organic hemiplegia was confirmed by Babinski's "second sign," when the plantar reflex failed to give the required information. J. D. ROLLESTON.

A NEW REFLEX PHENOMENON IN THE HAND: THE WRIST-
(139) **SIGN.** CHARLES GILBERT CHADDOCK, *Interstate Med. Journ.*, Vol. 19, Feb. 1912, p. 127.

FOR some time Chaddock has found in cases of pyramidal tract involvement above level of cord corresponding with flexor surface of wrist and forearm, but never in normal persons, the following phenomenon, well illustrated by photographs:—

1. *Stimulus.*—Scratch with a dull-pointed stick, or nail-file, the skin over palmar surface of wrist just at ulnar border of flexor carpi radialis tendon, for an inch or so up bend of wrist. In a few cases pressure with point of file, without scratching, has succeeded; occasionally any skin area of forearm may give the movement.

2. *Movement.*—Flexion of wrist, and extension and separation of all the digits, occasionally even wide separation. Often simultaneous contraction of middle fibres of triceps, sometimes even bulging of whole muscle. Rate varies, may be slow and maintained during continuation of stimulus, or quick and sharp, even with observable tremor.

Chaddock has seen it in dementia paralytica, organic epilepsy and hemiplegia, multiple sclerosis, tuberculous meningitis of cord, cerebro-spinal lues, Sydenham's chorea, and fracture of skull with intracranial hæmorrhage.

He adds some remarks on Gordon's "Finger-Phenomenon" (*Journ. of Amer. Med. Assoc.*, Vol. 57, 1911, p. 1591). Chaddock's fig. 2, showing back of P.'s R. hand and wrist supported by observer's left hand, should be consulted, if possible.

LEONARD J. KIDD.

ATYPICAL ZOSTER AND HERPETIC IMMUNISATION. (Zonas
(140) **atypiques et immunisation zonateuse.)** J. MINET (de Lille), *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 46.

A RECORD of three cases in support of the views recently put forward by Gougerot and Salin (*v. Review*, 1911, ix., p. 25).

1. Man, aged 60. Herpes in distribution of V^1 and mastoid branch of cervical plexus with typical lesions leaving scars, followed the next day by abortive lesions in the nape of the neck leaving no scars.

2. Man, aged 27. Herpes of right buttock, thigh, and genitals followed in forty-eight hours by an abortive eruption over the left lower ribs.

3. A woman, aged 27, whose maid had recently had herpes in the region of the left ulnar nerve, developed zoster on the left side of the thorax. Five days later an abortive eruption appeared on the right side. J. D. ROLLESTON.

HERPES AURIS. W. M. MOLLISON, *Guy's Hosp. Rep.*, 1911, lxv., p. 97.
(141)

A RECORD of two cases of inflammation of the geniculate ganglion.

1. Man, aged 28; the concha, inner part of tragus, and portion of the meatus were affected. There were facial palsy and pain in the right ear, followed by deafness, which Mollison attributes to paralysis of the stapedius. Improvement took place under electrical treatment.

2. Girl, aged 10; the concha and meatus were affected. There was facial palsy of the infranuclear type which under electrical treatment entirely disappeared in six months. J. D. ROLLESTON.

A CASE OF ACUTE INFLAMMATION OF THE GENICULATE
(142) **GANGLION.** F. W. MORTON PALMER, *Guy's Hosp. Rep.*, 1911, lxv., p. 275.

A MAN, aged 51, has a week's bad neuralgia which he attributed to catching cold. When seen by the writer he had well-marked

facial palsy with herpes of the concha and soft palate, all on the right side. He was completely deaf on that side and had lost all sense of taste in the anterior half of the right side of the tongue.

The writer concludes that the patient suffered from severe inflammation of the right geniculate ganglion with slight inflammation of the Gasserian ganglion on the same side.

J. D. ROLLESTON.

INTERMITTENT CLAUDICATION IN THE SPINAL CORD. (La claudication intermittente de la moelle épinierè.) J. DÉJÉRINE, *Presse Med.*, No. 95, Nov. 1911.

(143)

A CLINICAL lecture given at the Salpétrière.

The patient was a woman aged 37, who complained that in October 1908 she was troubled with weakness in the left lower limb, which came on after walking some distance. This became gradually worse and the distance she was able to walk became less, until in January 1911 the right leg was also affected. The sensation was that of gradually increasing heaviness of the limbs which soon were dragged along with difficulty, and ultimately could not be moved at all. After a short rest the patient was able to walk again, but soon became aware of the returning weakness of the legs. The left leg became a little spastic, and there were cramp-like feelings, but no actual pain. Exaggerated knee and Achilles jerks (more so on left side), ankle clonus and Babinski's sign were always present whether the limbs were in a paralytic condition or not. Wassermann reaction positive, four lymphocytes per c.mm. in cerebro-spinal fluid, history of enteric fever and small-pox, and almost certainly of syphilis. Besides the difficulty in walking, retention of urine and fæces were sometimes complained of.

The diagnosis from peripheral intermittent claudication depends on the absence of pain and circulatory disturbances, and the presence of vesical and rectal symptoms; the case must be one of defective blood supply of the lumbar enlargement.

The disease is more common in males, one side being nearly always affected sooner than the other. The course may be rapid or insidious, but all cases tend to go on to spastic paraplegia if untreated; one case did so in four days, whilst another patient who has had the disease for sixteen years is still able to walk a short distance. The organic reflexes are affected from the beginning, the most common symptom being precipitate micturition. Babinski's sign is usually, if not always, present. The ensuing paraplegia may be a hemiparaplegia, as the unequal affection of the two sides is so common. Syphilis nearly always figures in the history, but one typical case came on after a severe influenza.

The pathological condition must be a slowly progressing endarteritis. The treatment is antisyphilitic.

A full description of peripheral intermittent claudication is given. A. L. TAYLOR.

THE LUMBAR TYPE OF INTERMITTENT CLAUDICATION.
(144) J. RAMSAY HUNT, *Amer. Journ. Med. Sci.*, No. 479, Feb. 1912, p. 173.

ONE case is here described, that of a man, aged 51, alcoholic. His symptoms were of about two years' duration, and consisted of pain in the lumbar region which came on only while walking. After standing for a few minutes, or doing anything which took "the weight and strain off the spine," the pain would entirely disappear. As time went on he found it necessary to take more and more frequent rest, but always with the same result, a complete disappearance of the pain and perfect ability to continue his walk. The spine was perfectly mobile and the painful area was not tender on pressure. Except for a slight tremor of the hands and the mental and physical stigmata of chronic alcoholism, there was nothing of note. The condition is attributed to intermittent claudication manifesting itself in the lower portion of the sacro-lumbar mass, and results from either a disease of one or more of the lumbar arteries or to an arteriosclerotic process in the abdominal aorta which interferes with the free flow of blood through these vessels, so that a sufficient blood supply is received for the physiological processes in the passive state, but which does not suffice for the increased demands of the sacro-lumbar mass during activity; hence the painful cramp and its peculiar intermittent character. A. NINIAN BRUCE.

RECENT ADVANCES IN THE SURGICAL TREATMENT OF
(145) **SPINAL TUMOURS.** R. T. WILLIAMSON, *Med. Chron.*, Aug. 1911.

THE author records: 1. A case of successful removal of a solitary tubercle from the spinal cord (O. Veraguth and H. Brau, *Correspondenz-Blatt für Schweizer Aerzte*, No. 33 and 34, Nov. 20 and Dec. 1, 1910).

2. A case of successful removal of an intradural meningeal tumour, described as a fibroperithelioma myxomatodes lymphangiectaticum. In this case no spinal pressure symptoms were present when the diagnosis was made (Martins, *Inaug. Dissert.*, Rostock, 1910).

3. A successful removal of a glioma—extramedullary and intradural (Inglis, Klingman, and Ballin, *New York Med. Journ.*, Nov. 19, 1910).

4. A list of eleven successful operations on spinal tumours reported since May 1910. T. GRAINGER STEWART.

REMOVAL OF EXTRAMEDULLARY TUMOUR OF CERVICAL CORD: RECOVERY. (Area of supply of Eighth Cervical and First Dorsal Posterior Roots.) J. MICHELL CLARKE, *Brit. Med. Journ.*, Jan. 27, 1912.

(146)

THE case described is one in which a laminated fibroma was removed from the cervical region of the cord. The tumour was intradural, and was attached to the left postero-lateral aspect of the cord by a short pedicle; it compressed the cord at the level of the eighth cervical and first dorsal segments, and measured $1\frac{1}{8}$ in. in length by $\frac{3}{4}$ in. in diameter. In order to remove it Mr Hay Groves had to divide the eighth cervical and first dorsal posterior roots on the left side.

The symptoms were of two years' duration, commencing with pain which gradually became definitely localised to the upper part of the left side of chest, the two ulnar fingers, and ulnar border of left arm. This was attended by parasthesia, and later on by sensory loss, then by paralysis of the small hand muscles and muscles of the left forearm, followed by wasting of these muscles. Later still there was weakness of the muscles of right hand, slight wasting and weakness, also spastic paralysis of the lower extremities, sphincter trouble, but no sensory loss below the level of the lesion.

When admitted to the hospital the patient was unable to stand without support. She was operated on on the 21st of June and the tumour was removed. Immediately before operation there had been some slight sensory loss on the trunk and lower limbs; this disappeared a fortnight after the operation. Sphincter control was regained six weeks after the operation, and there was a steady improvement in the motor symptoms, first in the right arm, then in the spastic condition of the legs, so that on 10th October 1911 patient was able to walk, to use her right hand well, and had partial use of her left hand. Plantar reflexes were then definitely flexor. The progress has been well continued since. The author describes in detail the sensory loss resulting from the division of the eighth cervical and first dorsal posterior roots, and reviews the symptoms and signs in relation to the diagnosis of the condition. T. GRAINGER STEWART.

HÆMATEMESIS AND GASTRIC CRISES IN TABES. (Les hématémèses et les crises gastriques du tabes.) P. LEHMANN, *Thèses de Paris*, 1911-12, No. 28.

(147)

LEHMANN distinguishes three varieties of hæmatemesis:—

1. Hæmatemesis occurring in the gastric crises of tabes. In this class are included not only the cases in which the gastric mucosa is intact but also those with non-specific anatomical lesions

which are apparently due to tabes. In one case hæmatemesis was associated with herpes zoster (*v. Review*, 1909, vii., p. 360).

2. Hæmatemesis occurring in tabetics suffering from an organic lesion of the stomach such as cancer or ulcer.

3. Hæmatemesis in patients suffering from gastric ulcer complicated by polyneuritic pseudo-tabes.

J. D. ROLLESTON.

PNEUMOCOCCAL CEREBRO-SPINAL MENINGITIS. PNEUMO-
148) **COCCAL SEPTICÆMIA. (Méningite cérébro-spinale à pneumocoques. Pneumococcie.)** J. CHALIER, NOVÉ-JOSSERAND, and MAZEL, *Lyon Méd.*, 1912, cxviii., p. 207.

A RECORD of a case in an alcoholic man, aged 54. The onset was sudden, resembling that of pneumonia. Meningeal symptoms soon developed, and death occurred in four days. The necropsy showed a purulent cerebro-spinal meningitis and a small area of hæmorrhagic encephalitis in the right frontal cortex. There was an entire absence of pulmonary lesions. The blood and cerebro-spinal fluid yielded pneumococci. J. D. ROLLESTON.

PNEUMONIC HEMIPLEGIA AND PNEUMOCOCCAL INFECTION
(149) **OF THE MENINGES. (Un nouveau cas d'hémiplégie pneumonique avec pneumococcie méningée.)** LESIEUR, FROMENT, and CONVOZIER, *Lyon Méd.*, 1912, cxviii., p. 25.

A MAN, aged 70, simultaneously developed acute pleuro-pneumonia and transitory left hemiplegia. Lumbar puncture gave issue to a clear fluid with low tension, containing pneumococci but no leucocytes. Examination of the blood was negative.

J. D. ROLLESTON.

ERYTHEMA NODOSUM AND TUBERCULOUS MENINGITIS.
(150) **(Erythème noueux et méningite tuberculeuse.)** A. SÉZARY, *Gaz. des Hôp.*, 1912, lxxxv., p. 125.

SÉZARY draws attention to the frequency of tuberculous meningitis in persons, especially children, who have had erythema nodosum (*v. Review*, 1910, viii., p. 441, and 1911, ix., p. 204), and records a personal case in a girl, aged 8 years, who died of tuberculous meningitis four weeks after an attack of erythema nodosum. Sézary suggests that the skin lesion may have a nervous origin.

J. D. ROLLESTON.

EPILEPSY FOLLOWING A MENINGITIS OF UNDETERMINED ORIGIN. (Epilepsie consécutive à une méningite d'origine indéterminée.) P. SAINTON and M. CHIRAY, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 4.

(151)

THE patient was a woman, aged 19, admitted to hospital for epileptiform attacks, dating from an illness she had two years previously, which was probably epidemic cerebro-spinal meningitis, as she had been treated by injections of serum. The attacks were accompanied by a transitory cerebro-spinal leucocytosis, a few lymphocytes and polymorpho-nuclears being found in the fluid.

J. D. ROLLESTON.

A PNEUMOGRAPHIC STUDY OF RESPIRATORY IRREGULARITIES IN MENINGITIS. LEWIS A. CONNER and RALPH G. STILLMAN, *Arch. of Int. Med.*, Vol. 9, No. 2, Feb. 15, 1912, p. 203.

(152)

IRREGULARITIES in respiratory rhythm were observed at some time in the course of the disease in all of thirty-two cases of tuberculous meningitis, and in all but two of eleven non-tuberculous cases. They usually appear early; towards the end of life the breathing is apt to become very rapid and quite regular. Three distinct types may be distinguished: (*a*) the type of Cheyne-Stokes, (*b*) Biot's meningitic type, and (*c*) an undulatory type.

Cheyne-Stokes breathing was seen in 53 per cent. of all the cases, and in 63 per cent. of the cases in children. It is more common in cases of tuberculous meningitis than in non-tuberculous ones. It is of little or no diagnostic value in adults, but in children it is seen much more frequently in meningitis than in any other condition, and should arouse grave suspicion of that disease.

Biot's breathing was observed in 27 per cent. of the forty-three cases. Its incidence among the adults and among the non-tuberculous cases was greater than among the children and tuberculous cases. It was seen at all stages of the disease. When found it may be regarded as almost pathognomic of meningitis.

The third group, designated as the undulatory type, showed no apneic pauses, but was characterised by undulatory and more or less rhythmical variations in the rhythm and force of the respirations, and in the tonicity of the respiratory muscles. This form was seen at some time in the course of almost every case, and is of no great value in the diagnosis of meningitis.

A. NINIAN BRUCE.

THE PROPHYLAXIS OF CEREBRO-SPINAL MENINGITIS. HOWARD D. KING, *Journ. Amer. Med. Assoc.*, Feb. 10, 1912.

(153)

AFTER noting that the causative organism of cerebro-spinal meningitis has its natural habitat in the nose and throat, and that

the disease is spread through the medium of an intermediary or healthy carrier, King discusses the question of the route the infection pursues from the nose to the meninges. He favours the view that the "*diplococcus*" travels from the nose and throat to the cerebro-spinal canal *via* the blood-route. Lymphatic absorption of the organism containing-exudate in the throat might be accomplished, it is stated, by a blood invasion of the organisms free or within leucocytes, and since not every invasion of the blood is followed by an infection of the meninges, some other factor leading to a lowering of tissue resistance is postulated.

In so far as nearly one-fourth of all individuals residing in the immediate vicinity of meningitis cases act as meningococci carriers, harbouring the germs in the respiratory passages without displaying any evidence whatever of disease or inconvenience, elaborate methods are here advocated for the detection, isolation, and treatment of the disease carriers. The object of the treatment of the healthy disease carriers is to bring about a condition of bacterial freedom in the regions of the throat and nose, a nose specialist and a bacteriologist together striving not only to turn the offending organism out of its natural habitat, but also to completely exterminate it. The author does recognise that the healthy disease carrier has certain recognised rights.

KELMAN MACDONALD.

CEREBRO-SPINAL MENINGITIS. EMIL KRULISH, *Journ. Amer. Med.*
(154) *Assoc.*, Feb. 24, 1912, p. 551.

THE author considers that nasal sprays as ordinarily used for prophylaxis against cerebro-spinal meningitis are unnecessary because of the obscure etiology of the disease, because they do not destroy the germs, and because it is impossible to reach every portion of the nasal chamber by this means. They may even do harm by injuring the delicate mucous membrane and lowering its vitality, and tend to give the patient a sense of false security. They may only prove of value in one condition, namely where the patient has become exceedingly neurasthenic through fear of contracting the disease. A. NINIAN BRUCE.

THE MENINGEAL FORMS OF EPIDEMIC POLIO-ENCEPHALO-
(155) **MYELITIS.** SMITH ELY JELLIFFE, *Journ. Amer. Med. Assoc.*, June 24, 1911, p. 1867.

THE writer is of opinion that meningeal forms of acute poliomyelitis are much more frequent than is generally supposed; in many instances they run a mild course and are either overlooked or misinterpreted.

In epidemic poliomyelitis of the spinal type the meninges are almost invariably affected, so that practically all patients show some signs of meningeal irritation in their early stages; but those who show much more marked meningeal symptoms than spinal, although both are present, may be said to be suffering from the meningeal form of the disease.

One case is recorded as typical of a group of meningeal forms which the writer has observed in the recent American epidemic. The chief signs of the meningeal forms vary, in their initial stages, from those of the spinal type, only in the matter of greater severity. There is headache, nausea and vomiting, slight photophobia with hyperacusis, pains in the neck and back, stiffness of the neck, rigidity of the muscles of the vertebral column, opisthotonus of mild or severe grade, Kernig's sign, tonic and clonic convulsive movements; somnolence and even unconsciousness. The temperature is not characteristic.

The symptoms in this type frequently recede rapidly, leaving nothing beyond the possible occurrence of transitory or permanent eye palsies. In some few cases death ensues with the development of stormy symptoms. J. H. HARVEY PIRIE.

ACUTE POLIOMYELITIS WITH UNUSUAL MANIFESTATIONS. (156) MAX GREENWALD, *New York Med. Journ.*, Feb. 17, 1912.

CHILD, 21 months old, with gastro-intestinal type of onset of acute poliomyelitis is the subject of this report. The head was retracted and spine arched backwards, giving the impression of opisthotonos. An unusual manifestation was the "head drop," the head swaying in any direction as the child was lifted from the pillow. KELMAN MACDONALD.

ACUTE POLIOMYELITIS IN CALIFORNIA. F. F. GUNDRUN, (157) *Journ. Amer. Med. Assoc.*, Jan. 27, 1912.

A STATISTICAL account is here given of the epidemic of acute poliomyelitis in the State of California in summer 1910. Complete records were obtained of 125 cases, all of the ordinary type. In 88 per cent. of cases the onset was sudden; 73 per cent. occurred in children under the age of 8 years; and twice as many males were attacked as females. In 25 per cent. of cases meningeal imitation with head retraction gave the type to the onset of the disease, the remainder being of the ordinary gastro-intestinal type.

As to the paralysis, 23 per cent. occurred in the upper, 73 per cent. in the lower extremities, the remaining 4 per cent. being cases in which trunk and respiratory muscles were involved, causing death. Death-rate of epidemic was 6 per cent.

The disease appeared at widely separated points at almost the same time. Though only in 9 per cent. of cases a history of exposure was obtainable, it is worthy of note that all the towns, except one, in which the disease appeared are on railroad lines.

KELMAN MACDONALD.

A LECTURE ON EXPERIMENTAL POLIOMYELITIS. F. E. (158) SUTTON, *Lancet*, Feb. 17, 1912, p. 413.

THIS lecture gives a good summary of the facts known concerning the transmission of experimental poliomyelitis.

J. H. HARVEY PIRIE.

LOSS OF EMOTIONAL MOVEMENT OF THE FACE WITH PRESERVATION OR SLIGHT IMPAIRMENT OF VOLUNTARY MOVEMENT IN PARTIAL PARALYSIS OF THE FACIAL NERVE. (159) WILLIAM G. SPILLER, *Amer. Journ. of Med. Sci.*, Vol. 143, March 1912, p. 390.

AFTER a discussion of the alleged relationship between the optic thalamus and the emotional movements of the face, Spiller records a case of a young man who showed marked weakness of the left face on smiling, but only slight on showing the teeth: these are illustrated. Operation revealed a tumour of the left cerebello-pontine angle pressing upon the facial nerve. Spiller writes: "It is important to recognise that this form of dissociation of facial movement may be the first sign of weakness of the facial nerve from pressure of a cerebello-pontine angle tumour, and in connection with slight nerve deafness may be of localising value." He suggests that the impairment of emotional movement may be due, in part at least, to pressure on bulb and pons. He has not yet been able to determine whether this emotional facial impairment occurs in most cases of tumours of the cerebello-pontine angle.

LEONARD J. KIDD.

A CASE OF ABSCESS OF THE FRONTAL LOBE OF THE BRAIN FOLLOWING EMPYEMA OF THE FRONTAL SINUS. (160) NIMMO WALKER, *Liverpool Med.-Chirurg. Journ.*, Jan. 1912, p. 189.

A RAILWAY porter, aged 21, got a blast in the left eye eight days previously. The upper lid was swollen and œdematous, no definite fluctuation, and pulse and temperature were normal. Incision down to bone revealed no pus. A second incision, three days later, gave pus. The frontal sinus was not opened at this time, but as the patient grew worse the anterior wall was removed and pus found. Removal of the posterior wall showed an extradural

abscess. The dura pulsated vigorously. As he still grew worse, the dura was incised and an abscess was found in the tip of the frontal lobe, at a depth of half an inch. The pus was pneumococcal. Recovery resulted.

Two outstanding features of the case were the continuance of cerebral pulsation, which delayed the exploration of the brain for four days, and the discrepancy between the temperature and the pulse, the pulse being low, the temperature high. There was no headache, no retarded cerebration, no vomiting, no optic neuritis, and no weakness of muscles. A. NINIAN BRUCE.

EXTRADURAL HÆMORRHAGE; RECOVERY AFTER TREPHINING.
(161) B. T. TILTON, *N.Y. Med. Journ.*, Feb. 24, 1912, p. 381.

THE patient was a medical man who received a moderate blow over the left temporal region from an epileptic patient. The symptoms were quite typical, and on trephining a rupture of the posterior branch of the middle meningeal artery was found.

A. NINIAN BRUCE.

A CASE OF LESION OF THE OPTIC THALAMUS, WITH AUTOPSY.
(162) GORDON HOLMES and HENRY HEAD, *Brain*, Vol. xxxiv., Parts II. and III., Nov. 1911, p. 255.

A MAN, aged 49, with chronic Bright's disease and hypertrophy of the heart, suffered from three strokes at short intervals, without loss of consciousness, the last more than two months before his death. There was little or no paralysis, and the reflexes remained normal, but he suffered from severe pains throughout the whole of his right side, associated with almost complete loss of tactile and postural sensibility on this side. The threshold for painful stimuli was much raised, though certain forms of discomfort, when evoked, were more severe, less bearable, and produced a greater reaction. The appreciation of temperature was abolished, but thermal stimuli below 20° C. and above 55° C. produced more discomfort than on the normal side, and an excessive reaction. There was also loss of the ability to appreciate weight, size, shape, and form. He had bilateral deafness, greater on the side opposite to the lesion, as a result of the strokes.

On post-mortem examination an extensive softening was found in the ventral and lateral regions of the left optic thalamus, which invaded that portion of the ventral nucleus of the thalamus in which the fillet terminates. The greater part of the softening, however, formed a narrow cleft in the lateral zone of the thalamus separating it from the internal capsule. The internal nucleus of the thalamus was very little affected.

The symptoms observed in this case are then collated with those of similar cases in which the site and extent of the disease was determined by autopsy, particularly with those recorded by Edinger, Greiff, Roussy (five cases), Long (two cases), and Winkler and van Londen. A. NINIAN BRUCE.

ON LESIONS OF THE MID-BRAIN, WITH SPECIAL REFER-
(163) **ENCE TO THE BENEDICT SYNDROME.** SMITH ELY JELLIFFE, *Interstate Med. Journ.*, Vol. xviii., No. 8, 1911.

THE mid-brain may be regarded as bounded caudad by the forward edge of the pons and cephalad by the upper border of the anterior corpora quadrigemina. Four characteristic syndromes are described for lesions in this region, the Weber syndrome, the syndrome of Benedict, the Nothnagel syndrome, and the syndrome of Combe.

Benedict's syndrome consists of some oculomotor palsy of one side combined with a hemiplegia of the opposite side and a tremor in the paralysed extremity.

A case is described of a woman, aged 32, with possible mild heart lesion following severe scarlet fever at age of 7, who suddenly developed, with semi-unconsciousness, a mild right-sided hemiplegia with hemianæsthesia, hemianopsia, and speech disturbance and crossed (?) oculomotor signs. She made a rapid recovery, and after three months commenced to develop a tremor of the right arm. After five months there only remained a residual homonymous hemianopsia of the right side, a right-sided tremor resembling that of paralysis agitans, with slight intention quality, and only traces of the former hemiplegia—tongue to right —increased Achilles on right side.

Jelliffe is inclined to dispose of his case as a lesion of the optic tracts in their ascent to the corpora quadrigemina and of the rubro-cortical tracts as they sweep out of Forel's field, although it is not possible to exclude the presence of a double lesion nor of a basal lesion. A. NINIAN BRUCE.

A CASE OF BRAIN TUMOUR SUCCESSFULLY LOCATED BY
(164) **MEANS OF THE X-RAYS.** J. H. LLOYD and L. J. HAMMOND. *Amer. Journ. Med. Sci.*, Feb. 1912, p. 241.

THE tumour was a psammoma of large size which had undergone calcareous degeneration. It gave a very distinct shadow in the X-ray photograph, and was located within the posterior part of the right temporal lobe. Otherwise the localising symptoms were very indefinite. The patient was a boy, aged 17; he had suffered from epileptic attacks between his eighth and fifteenth years, in one of which he fell and struck his right parietal region. This

was followed by numbness and loss of power in his left arm and leg, which only cleared up after a long period. At 14 he had typhoid, after which the epileptic attacks ceased. The first symptoms of organic brain disease arose at 16, when he began carrying his head to the right side, and had a sense of stiffness in his neck. Later, his gait became awkward, and his vision failed. No headache. On examination double optic neuritis, no loss of power in arms or legs, exaggerated knee-jerks on left side with slight ankle clonus were found, with impaired sensation for touch, pain, heat and cold below the left knee. Elsewhere sensation was normal. Intelligence clear.

Patient was trephined over right parietal bone, *i.e.*, over the spot indicated by the X-ray shadow. The membranes bulged under great tension, were incised and a cyst found. Deep within this cyst a hard bony mass was felt, attached posteriorly. The wound was closed, and the symptoms all disappeared for about six weeks. A month later, however, as all the symptoms had returned the tumour was removed, and found to consist of separate masses packed together like gallstones. He died on the eighth day. No autopsy permitted. A. NINIAN BRUCE.

MULTIPLE HEMANGIOPERITHELIOMA OF THE BRAIN.
(165) WILLIAM G. SPILLER, *Journ. Amer. Med. Assoc.*, Feb. 17, 1912, p. 473.

ENDOTHELIOMA or perithelioma is not an uncommon tumour within the cranium and usually is solitary. Endothelioma may occur in the form of multiple tumours on the dura, and sometimes as miliary dural growths. It is rare to find numerous tumours of an endotheliomatous character within the brain substance. In the form of perithelioma with the rosette-like arrangement of columnar cells about the vessels, it is more common within the brain substance than in the form of chains or columns of cells or groups of concentrically arranged cells.

In this case the tumours were very numerous, and every tumour was the site of a hæmorrhage. Most of the tumours had a connection with the cortex at some part, but some were entirely within the brain substance.

The patient was a man, aged 60, with paraphasia, word deafness, and word blindness. The limbs were not paralysed but he could not grasp well; right side Babinski, left normal. No optic neuritis, but right homonymous hemianopsia. He finally developed Jacksonian epilepsy involving the upper part of face and mouth and right upper limb (right lower limb and left limbs not affected). After the convulsions there was a right-sided flaccid paralysis, but the patient did not recover from the attack. A. NINIAN BRUCE.

TUMOUR OF THE BRAIN. HYMEN CLIMENKO, *N.Y. Med. Journ.*, (166) **Feb. 10, 1912, p. 282.**

THE tumour was a glioma measuring about 3 by 3 cm., and was successfully removed from the neighbourhood of the left supramarginal convolution. The interest of the case lies in the fact that the tumour existed for a considerable time in a functionally important area of the brain without giving any discomfort to the patient, and when the symptoms made themselves apparent, they were of such rapid onset as to simulate an acute disease. Both plantar reflexes were flexor, there was no ankle clonus and the knee-jerks were diminished, the right greater than the left. The left epigastric and abdominal reflexes were present, while the right were absent. There was no disturbance of cutaneous sensibility, but there was complete astereognosis in the right hand, and a certain degree of ataxia in the right upper extremity. There was a slight elevation of the optic discs and tortuous veins.

A. NINIAN BRUCE.

TUMOURS OF THE PINEAL BODY, with an account of the Pineal
(167) **Syndrome: the Report of a case of Teratoma of the Pineal and Abstracts of all Previously Recorded Cases of Pineal Tumours.** PEARCE BAILEY and SMITH ELY JELLIFFE, *Arch. of Int. Med.*, Vol. 8, Dec. 1911, pp. 851-880.

PINEAL tumours are rare, and their symptoms often vague. Two groups of symptoms may be distinguished, those common to all brain tumours, with certain focal symptoms, and those due to interference with the normal function of the gland.

In the former group, headache is usually the first symptom, mostly occipital, later diffuse. Optic neuritis develops early. Abnormal drowsiness or sleepiness has been frequently described, even in the early stages, and is probably a symptom of increased intracranial pressure, due to hydrocephalus, which is caused by at least two factors, pressure on the veins of Galen and obstruction to the aqueduct of Sylvius. The hydrocephalus alone may later give rise to increased muscular tonus, weakness without paralysis of the extremities, increased tendon reflexes, and even ankle clonus and Babinski's sign. Pressure on the corpora quadrigemina is almost inevitable, and leads to ocular and pupillary signs, which are characteristic and constant. Nystagmus is not infrequent. Of the conjugate palsies, those for upward movements are most common. The pupils are usually widely dilated, frequently unequal, and are sluggish to light and to accommodation, the result of pressure on the anterior corpora quadrigemina and the posterior commissure. Auditory and cerebellar symptoms may also develop from pressure on neighbouring parts.

In the latter group are to be included adiposis, early sexual maturity, and cachexia. Adiposis may also result from hypopituitarism, and pressure on the pituitary is a marked feature of hydrocephalus, but although there is some evidence that pineal tumours may cause adiposis, it is uncertain if this be due to disturbed function of the pineal gland, or to the hydrocephalus. Whether the early sexual maturity and cachexia have any relation to the pineal body or to the hydrocephalus is also uncertain.

The case described here is that of a boy, aged 12, who was sent to hospital because of failing memory and difficulty in walking. He was markedly fat. Optic neuritis was present, very little headache, but he was inclined to be sleepy. Pupils were equal, irregular in outline, and reacted slowly to light and during accommodation. Upward movements of eyes completely lost. Ankle clonus present and double Babinski. Gait spastic and ataxic, marked Rombergism. X-ray examination showed a number of shadows in the region of the pineal body. Patient grew steadily worse. A decompression operation was performed in three stages, but he died a fortnight later.

At the autopsy a section of the brain showed a large rounded encapsulated tumour about 1½ in. in diameter replacing the pineal gland. The tumour was soft and consisted of sebaceous matter, hair, and pieces of cartilage. The cartilage had undoubtedly given the shadow on the X-ray plate. All the ventricles were enormously dilated. The aqueduct of Sylvius was almost obliterated, and the corpora quadrigemina were flattened.

A summary of fifty-nine other cases is given.

A. NINIAN BRUCE

PERNICIOUS ANÆMIA CAUSING SPINAL CORD CHANGES (168) **AND A MENTAL STATE RESEMBLING PARESIS.** CARL D. CAMP, *Med. Rec.*, Jan. 27, 1912.

A CLINICAL account is given of a man aged 46, who, according to Professor Hewlett of Michigan University, was suffering from "pernicious anæmia, probably in the stage of remission."

There were lesions in both the posterior and lateral columns of the spinal cord; the former shown by ataxia, Rombergism, sensory changes, and lost Achilles reflexes, and the latter by spasticity and positive Babinski reflex. Argyll-Robertson pupil was absent, as were bladder symptoms, lightning pains, crises, and other symptoms suggestive of tabes. The Wassermann reaction was negative, and negative findings in the cerebro-spinal fluid were almost conclusively against the diagnosis of paresis or any syphilitic or parasyphilitic disease of the brain or spinal cord.

Considerable attention is given to the mental disturbance in

the case. Attacks of anger ushered in delusions of being poisoned. The patient had no disorientation for time or place, had no memory defect, but marked mental exaltation with grandiose ideas was present, the patient stating that he had "a new theory of disease that will revolutionise the world," and believed that he held "the key to the diseases."

Useful references to the mental symptoms associated with pernicious anæmia are given. KELMAN MACDONALD.

THE TECHNIQUE AND RESULTS OF DEEP INJECTIONS OF
(169) **ALCOHOL FOR TRIFACIAL NEURALGIA.** HUGH T. PATRICK, M.D., *Journ. Amer. Med. Assoc.*, Vol. lviii., No. 3, Jan. 20, 1912, p. 155.

THE paper contains a clear account of the technique of alcohol injections as practised by the author in a large number of cases of trigeminal neuralgia.

A very necessary stress is laid on the uncertainty of success that may attend the operation. Roughly speaking, 33 per cent. of injections of the middle division and 28 per cent. of injections of the third division are quite successful, 42 per cent. of injections of the middle division and 45 per cent. of injections of the third division are partially successful, while the remaining 25 per cent. and 27 per cent. are failures. If there is little or no analgesia as an immediate result of the injection, the relief from pain probably will not be for long.

The paper is based on actual experience, and, therefore, will commend itself to anyone interested in the subject, and, with most of the opinions and conclusions expressed in it, he will agree. P. W. SAUNDERS.

UNEQUAL PUPILS AS AN EARLY SIGN IN PHTHISIS. J. L.
(170) TUECHTER, *Journ. Amer. Med. Assoc.*, Feb. 24, 1912, p. 548.

THE author states that a pupillary difference, which is not caused by a pathologic condition of the eye, forms a valuable early sign in phthisis, both in the absence of other signs and symptoms as well as in their presence. It is not necessarily found on the side corresponding to the pulmonary involvement. Four cases are described. A. NINIAN BRUCE.

A CASE OF SEVERE VERTIGO: DESTRUCTION OF THE
(171) **LABYRINTH; CURE.** MACLEOD YEARSLEY, *Lancet*, Feb. 17, 1912, p. 428.

A WOMAN of 31 who had suffered for eleven years from severe attacks of vertigo, sudden in onset with a tendency to fall to the

right, and followed always by severe vomiting. The patient was deaf on the right side, there having been discharge from that ear for eighteen months after an attack of diphtheria at the age of 18.

After operation she improved almost to the point of complete cure. She still had slight giddy feelings, but no nausea or vomiting. The most interesting sequence of the operation was the loss of the sense of space when in the dark—in the patient's own words—I "cannot imagine a clear space before me, although I may be certain in myself that the way is clear." J. H. HARVEY PIRIE.

HYDROCEPHALUS AS A SEQUEL TO SHOCK. A. KEITH ARM-
(172) STRONG, *Brit. Med. Journ.*, Feb. 3, 1911, p. 240.

MAN, aged 54, a cowman, was knocked against a fence by a bull and received a bruise on the right side of the chest. He walked home unassisted. The injury was unimportant, but he became markedly nervous, the tremor of his hands being sufficient to cause some difficulty in feeding. Under rest and tonics he slowly improved, and left home for three weeks. On his return he was still so nervous as to be unfit for work, and remained in this condition for four months. He then suddenly became much worse, the tremor increased, ankle clonus developed with some rigidity of the lower limbs. The plantar reflexes and pupillary reactions were normal. He grew steadily worse and died from a terminal pneumonia about seven months after the above injury.

At the autopsy the dura mater and arachnoid appeared to be normal. The convolutions were slightly flattened. On opening the brain it was seen that some dilatation of the ventricles was present. The ependyma seemed healthy. The spinal cord appeared normal although there was a considerable excess of cerebro-spinal fluid. A. NINIAN BRUCE.

THE OCCURRENCE OF A POSITIVE WASSERMANN REACTION
(173) **IN TWO CASES OF NON-SPECIFIC TUMOUR OF THE CENTRAL NERVOUS SYSTEM.** LEO NEWMARK, *Journ. Amer. Med. Assoc.*, Vol. lviii., No. 1, Jan. 6, 1912.

THE nature of the paper is sufficiently indicated by its title. The first case reported was a gliosarcoma of the brain, the second a spinal tumour. In both cases the "Wassermann" was positive in the blood and in the cerebro-spinal fluid. In the first case there was no evidence of a specific history, in the second it was remotely suggested. In the second case, further, the Wassermann reaction seems to have become negative by the time the patient was submitted to operation, possibly owing to vigorous anti-specific treatment which had been given previously to operation.

P. W. SAUNDERS.

AN EXPLANATION OF THE POSITIVE WASSERMANN TEST FOLLOWING SOME CASES OF ANESTHESIA. S. L. CHERRY, *N.Y. Med. Journ.*, Feb. 3, 1911, p. 231.

(174)

ANTICOMPLEMENTARY bodies are formed in the blood of dogs during chloroform anesthesia, and these cannot be removed entirely from the serum by heating it to 55° C. for thirty minutes.

When antigen, possessing anticomplementary properties in undue amount, is combined with a serum possessing anticomplementary properties, the total of the two may be sufficient to cause more or less fixation of complement in the Wassermann test. The purer the antigen is, therefore, the more strongly a positive Wassermann test points to syphilis.

A. NINIAN BRUCE.

SCORBUTIC POLYNEURITIS. (A proposito de um caso de polinevrite escorbutica. A. AUSTREGESILO, *Arch. Brasil. de Med.*, 1911, i. p. 935.

(175)

A CLINICAL lecture on a case in a Brazilian boy aged 12. After declaring himself in favour of the infective theory of scurvy the writer discusses the symptoms and lays special stress on the early exaggeration of the knee-jerks, which is soon followed by their complete abolition. In discussing the diagnosis he remarks that several so-called outbreaks of beri-beri are really epidemics of scorbutic polyneuritis. J. D. ROLLESTON.

POST-OPERATIVE AND POST-ANÆSTHETIC NEURASTHENIAS AND PSYCHOSES. JOHN K. MITCHELL, *Amer. Journ. Med. Sci.*, July 1911.

(176)

THE author reports the results of examination of some hundreds of case histories recorded in eight or ten years, with special reference to these points.

He finds three types of nervous disturbance after operation, viz., neurasthenia, cases of fatigue neurosis without marked mental symptoms; melancholia, nervous depression often hypochondriacal, not including the more serious forms such as might be put under the head of manio-depressive insanity or recurrent periodic melancholias; psychasthenia, cases with obsessions or *idées fixes*, and those which though superficially seeming neurasthenia exhibited on further study mental symptoms. He omits cases of sexual origin or of commencing paresis or dementia præcox.

In 344 cases, 220 were women and 124 men, showing a higher proportion of the latter.

There seemed to be no relation between the severity of the operation and the occurrence of subsequent nervous disorder; nor does it seem to depend on post-operative surgical complications.

He traces a connection with too early rising from bed after operation.

The article concludes with a warning against undertaking operative treatment for the relief of neurasthenic symptoms.

R. C. ALEXANDER.

PSYCHIATRY.

NOTES OF A LECTURE ON MEDICO-LEGAL RELATIONSHIPS
(177) **OF GENERAL PARALYSIS OF THE INSANE.** SIR GEORGE H. SAVAGE, *Lancet*, Feb. 2, 1912, p. 275.

GENERAL paralysis is a disease which is apt to bring the individual into conflict with society, or to give rise to medico-legal problems in any of its stages, but particularly in the first or prodromal stage. The loss of higher control in this stage, so that the actions follow feeling rather than reason, leads to impulsive actions, varying with the individual; but as examples, there may be cited violent language, brutal assaults, sexual faults of various kinds, and senseless acquisitiveness of articles for which the individual has no real want.

Assaults may be made partly under the influence of drink, but they are always impulsive rather than premeditated. In cases of indecent exposure or assault perpetrated by men of middle age, one should always be on the outlook for the physical signs of general paralysis. Senseless theft or reckless speculation, and ordering of goods, &c., is very typical of the exalted stage of general paralysis, and is liable to lead to legal proceedings.

The question of general paralysis being produced by injury sometimes comes up for consideration, and the view taken by the writer is this: That while general paralysis probably cannot arise without previous syphilis, yet some other factor is necessary to start it off, and an accident may be this other factor. With regard to testamentary capacity, in the majority of cases it is improbable that a general paralytic will make a sound will, but it must be admitted that in the early stages there may quite well be periods of sanity or lucid intervals in which a perfectly valid will may be made. It must, of course, be remembered that the mere fact of being a general paralytic or insane is not any proof that the individual has not "a sound and disposing mind" in the eyes of the law.

J. H. HARVEY PIRIE.

GENERAL PARALYSIS AMONG WOMEN IN RIO DE JANEIRO.
(178) **(Paralysia geral feminina do Rio de Janeiro.)** W. G. DE ALMEIDA, *Arch. Brasil. de Med.*, 1911, 1, pp. 347, 556, 843, 953.

GENERAL paralysis is rare among women in Rio. In a period of thirty years out of a total of 19,094 insane patients—11,931 males, 7,163 females—there were 619 male and only 33 female general paralytics, *i.e.*, 1 female to 28 male, as contrasted with the European average of 1 female to 8 male paralytics. As in men, syphilis is the principal factor in the causation. The distinguishing feature of the disease in women is its slower and calmer evolution. Erotic ideas are not so prevalent as some authors maintain. The expansive form is commoner than the melancholic. Remissions are very rare. Only a single case of juvenile general paralysis was observed, and only two cases were associated with tabes. The duration of the disease appears to be longer in Rio than in Europe. Alcoholism contributes much to accelerate its course. The disease usually starts between the ages of 30 and 45. A later onset is rare. Women of the lower classes are attacked by preference, the disease being almost confined to prostitutes. The comparative rarity of the disease in Brazil is due to the fact that woman's struggle for existence is less arduous than in other populous centres.

The paper contains the histories of twenty-eight cases and ten illustrations. J. D. ROLLESTON.

FURTHER INVESTIGATIONS ON THE CEREBRO-SPINAL
(179) **FLUID IN INSANITIES.** G. SCOTT WILLIAMSON and J. R. P. PHILLIPS, *Journ. of Ment. Sci.*, Jan. 1912.

THE authors employed three tests, the Noguchi, the Wassermann, and the glycol-tryptophane. The last named depends on the presence in blood serum of a ferment capable of splitting up glycol-tryptophane, which is a synthetic di-peptide. This ferment is not present in normal cerebro-spinal fluid, but appears in the fluid under the stimulus of a local irritant. The technique of the test is as follows: Add 1 c.c. glycol-tryptophane solution to 10 c.c. cerebro-spinal fluid, and cover with toluol; incubate for twenty-four hours at 37° C.; take out a sample, and add bromine water solution (bromine water, 3 parts; glacial acetic, 10 per cent., 5 parts) drop by drop until a rose-pink or lilac colour appears, disappearing on further addition of bromine water. The appearance of this colour indicates free tryptophane and a positive reaction. In 16 normal fluids the ferment was absent. In 30 cases of irritative conditions, the lesions being general or local, the reaction was positive, thus indicating that an exudation of serum was present. Of 52 cases

of insanity only 8 gave a negative result, and these 8 were cases in which it was certain that no progressive irritation was present, and were for the most part imbeciles. The importance of these results in relation to the question of ætiology is pointed out. As regards the other two tests, the Noguchi corresponded with the Wassermann in 95 per cent. of the cases. W. BOYD.

SUICIDE AND HUNTINGTON'S CHOREA. LADAME, *L'Encéphale*, (180) Nov. 10, 1911, p. 422.

FROM an examination of the already extensive literature, and from his own experience, Ladame concludes that the text-book description of suicidal insanity in Huntington's chorea is erroneous. Suicide and suicidal attempts are, as a matter of fact, very infrequent, but the irritability of the patients leads them frequently to express their intention of committing suicide. Where suicide occurs it has usually been the result of some complication, such as alcoholism, epilepsy, various psychoses, &c. S. A. K. WILSON.

OSTEOMALACIA AND INSANITY. (L'ostéomalacie dite des aliénés.) (181) CHARPENTIER and JABONILLE, *L'Encéphale*, Nov. 10, 1911, p. 430.

AFTER an exhaustive consideration of the literature bearing on the subject of the tendency to fracture in insane cases, the authors conclude, in a critical review, that (1) fractures do not occur with greater frequency in the insane; (2) in many cases so-called spontaneous fractures have been due to other causes than mental alienation; (3) the idea of osteomalacia in the insane ought not, however, to be summarily rejected, for some undeniable cases have been recorded. S. A. K. WILSON.

TREATMENT.

PSYCHOTHERAPY AND GENERAL MEDICINE. WILLIAM P. S. (182) BRANSON, *Lancet*, Jan. 13, 1911, p. 92.

THIS paper is a plea for the recognition of the emotional element present in many physical illnesses, and for the recognition of the fact that many diseases presenting themselves to view as mainly physical are essentially emotional in origin. The object of such recognition is to secure that the physical elements of disease should be treated by physical means, and the psychical elements by psychical means, the author holding that at present physical and psychical elements are unduly confounded, and are treated together by physical methods to the disadvantage of the patient and the medical profession, but to the advantage of the quack. The par-

ticular method of treatment indicated is called Rational Psychotherapy, and is based upon the following propositions: (1) That ideas, through the emotional states to which they give rise, are capable of disordering bodily function; (2) That disorders of function, on their part, are capable of evoking ideas and depressed emotional states which, in obedience to the first proposition, end by disordering function still further; (3) That in so far as a disease is ideogenic it ought to be treated on psychical lines—that is, by discharging the pathogenic idea; (4) That though pathogenic ideas can be discharged by an appeal to the imagination, it is better to discharge them by an appeal to the reason: for the former method tends to confirm imaginative and irrational leanings, while the latter tends to correct them. The paper proceeds to establish these propositions, and lays down a number of commonplaces of physiology and psychology, designed to be of service to the practitioner in pointing out to the patient the path along which the mind-made factors of physical illnesses tend to be developed, and in indicating the means by which those factors may be met. The paper concludes with a section devoted to a consideration of the classes of case suitable for this treatment, and an outline of the method of practice recommended by the author. AUTHOR'S ABSTRACT.

Review

LA PRATIQUE NEUROLOGIQUE. (Publiée sous la direction de Pierre Marie.) Par MM. O. CROUZON, G. DELAMARE, E. DESNOS, GEORGES GUILLAIN, E. HUET, LANNOIS, A. LÉRI, FRANÇOIS MOUTIER, POULARD, ROUSSY. Secrétaire de la Rédaction; O. CROUZON. Avec 302 figures dans le texte, pp. 1402; prix 30 fr. Paris: Masson et Cie., 1911.

(183)

IN this recent product of the Bicêtre school the authors have produced a work which not only gives an admirable systematic exposition of the symptomatology of nervous diseases but puts that knowledge in such a form that the physician at the bedside is enabled to study the symptoms in their natural connection, draw from them their indications as to the seat of the morbid process and thus arrive at a practical judgment as to the disordered mechanism.

The inspiration of the work has come from Pierre Marie, and his influence can be traced throughout the whole of the work. The general symptomatology has been distributed among the various collaborators, and a special feature of the work is the

extremely full treatment accorded by competent specialists to disorders of the more special systems such as the visual apparatus (Poulard), the ear and throat (Lannois), and the urino-genital apparatus (Desnos). The names of those who have collaborated in the work form a sufficient guarantee of the thorough and systematic presentation of the various topics in the articles which bear their signatures. Moutier, whose exposition of Marie's doctrine of aphasia aroused so much attention, is responsible for the chapters dealing with the disorders of speech, with the disorders of writing, with aphasia, apraxia, and agnosia. Roussy, whose recent work on the thalamic syndrome has been of such value, devotes over one hundred pages to a thorough discussion of sensibility and its disorders. Crouzon has not only been the indefatigable editor of the joint work, but has contributed several of the most important articles, the value of which is due to their being based on an almost unrivalled clinical experience; Guillain's previous work on radicular palsies peculiarly qualifies him to deal with the symptomatology of palsies of cerebral, spinal, radicular, and peripheral origin. Léri has almost one hundred pages in which to discuss the muscular atrophies and hypertrophies. It would take up too much space to refer to all the various divisions of the work and make a critical examination of them. Nothing more could be done in the way of lucidity of exposition than the authors have done. It cannot be denied that the work shows a certain unevenness and want of balance, and the attempt to make it comprehensive has, perhaps, made it rather unwieldy. In some of the chapters this tendency is very prominent, especially in those of Guillain; thus he devotes thirteen pages to the laws dealing with the commitment of the insane, pages which would be more appropriately looked for in the appendix of a text-book of psychiatry. One may also question the wisdom of giving seventy-one pages to the insertion, innervation, and actions of the individual muscles; their action might have been more briefly referred to in dealing with the more frequent types of nerve lesions, and much of the anatomical detail might have been omitted.

The practical trend of the book is emphasised by certain divisions being devoted exclusively to treatment, but here again the proportion is somewhat at fault; electro-diagnosis and electro-therapy hardly deserve the 151 pages allotted to them, while the twenty pages given to detailed prescriptions for the treatment of the various forms of neuralgia are quite out of place in a work of this kind. Poulard's contribution on the nervous troubles of the visual apparatus is one of the most valuable; it is strange that he makes no reference to the interlacing of the colour fields in brain tumour, on which Cushing lays considerable stress.

Among the most interesting and important problems in neurology at the present time are those raised by recent serological studies (epidemic cerebro-spinal meningitis, anterior poliomyelitis, syphilis of the cerebro-spinal system). It is, therefore, with some disappointment that one finds only the briefest reference to the Wassermann method and no review of the extremely important data which so many observers have been diligently accumulating from this point of view. The comparative neglect of this topic can, of course, be explained by the special lines of interest of the Bicêtre school.

The fact that the work as a whole is somewhat uneven detracts very slightly from its value as a work of reference, and the extremely clear and systematic presentation of complicated subjects is, perhaps, to be credited partly to that system of examinations which in his preface Marie so much deplores. Marie must feel proud of such a monument to his own neurological teaching, and Dr Crouzon is to be congratulated in having brought to completion a work of this magnitude, which cannot fail to be of the greatest use to all who are seriously interested in neurological studies.

C. MACFIE CAMPBELL.

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Review
of
Neurology and Psychiatry

Original Articles

ACUTE MYELITIS AND THROMBOTIC SOFTENING OF THE SPINAL CORD.

By JOSEPH COLLINS, M.D.,
Physician to the Neurological Institute of New York.

(*Read before the American Neurological Association, 11th May* 1911.)

(Plates 6-14.)

THE diagnosis "myelitis," "transverse myelitis," "acute myelitis," is one not infrequently made, I venture to say. Nevertheless, genuine inflammation of the spinal cord aside from the infectious form known as poliomyelitis is an extremely rare occurrence. Some cases diagnosticated as myelitis and transverse myelitis are in reality cases of disseminated sclerosis or systemic sclerosis dependent upon morbid state of the blood; others, and these constitute the bulk of the cases of so-called "acute myelitis," are undoubtedly softening of the cord incident to thrombosis of its blood vessels. Although the truth of such statement is, I think, generally admitted, "acute myelitis" continues to be described in text-books and journals as though it were an important disease because of its comparative frequency, whereas acute softening, thrombotic or otherwise, is dismissed very briefly. This would be an extraordinary state of affairs indeed were it not susceptible of explanation. As a matter of fact, the term myelitis is currently used to describe all acute lesions of the spinal cord, and especially all those that affect the cord transversely. In other words, though it has a specific meaning etymologically it has a generic application

clinically. I am convinced that Bastian[1] is right in maintaining that the evidence seems to be altogether overwhelming that in the great majority of cases of so-called acute myelitis the affection is caused not by an inflammation, but by thrombosis of some of the vessels of the spinal cord. To the clinician this is of no interest whatsoever, for acute myelomalacia due to thrombus or embolus cannot be differentiated from lesion of the cord dependent upon true inflammatory process, *i.e.*, from myelitis in the literal sense of the term. Until such distinction can be made, there is no object in pushing the matter to acceptance. This probably explains why Bastian's teachings of this matter, which he has held for twenty-five years, have not had wider acceptance.

It avails us nothing to point out that the great majority of cases of softening of the brain are dependent upon thrombotic process, which we do not call cerebritis or encephalitis, and that cases of genuine inflammation of the brain are very rare compared with them. When we are told that these two pathological states can be distinguished clinically, then as guardians of health we become interested. Every few years during the past half century a limb is lopped off the tree that was called chronic myelitis until now scarcely the stump of the tree is left, and we distinguish with more or less readiness and certainty tabes, syringomyelia, tumour of the cord, disseminated sclerosis, syphilitic spinal paralysis, &c. We cannot, as yet, however, distinguish acute thrombotic or embolic softening from infectious or infiltrative myelitis, or toxic myelitis. Until we can, the matter is purely academic, not practical.

During the past year there were in my service at the Neurological Institute three cases of what is commonly called acute transverse myelitis, that is cases in which evidences of transverse lesion of the cord developed more or less abruptly, and lead rapidly to death. One of them was preceded by retrobulbar neuritis, and one was accompanied by optic neuritis. Dr Holden,[2] ophthalmologist to the Neurological Institute, has discussed this feature of these cases. I shall say little of that accompaniment of acute inflammatory and thrombotic lesions of the spinal cord.

CASE 1.—On 30th December 1909, Dr Henry S. Oppenheimer asked me to see a married woman, 29 years old, who said that

[1] Bastian, *Lancet*, 26th November 1910.
[2] *Archives of Ophthalmology*, August 1911.

a few days before Christmas 1909 she had noticed that vision of the left eye was blurred; by Christmas day she was quite blind in that eye. On 27th December she complained of stabbing pain in the left side of the face which was paroxysmal in occurrence, relieved by hot applications and which did not recur at all after a few days. Dr Oppenheimer wrote that neither eye was tender on pressure backward, that both pupils responded to light and accommodation, that vision of the right eye was 20/15, of the left eye no perception of light, and that the fields were as indicated in the annexed chart. Tests with a prism of 6.00 spherical glass

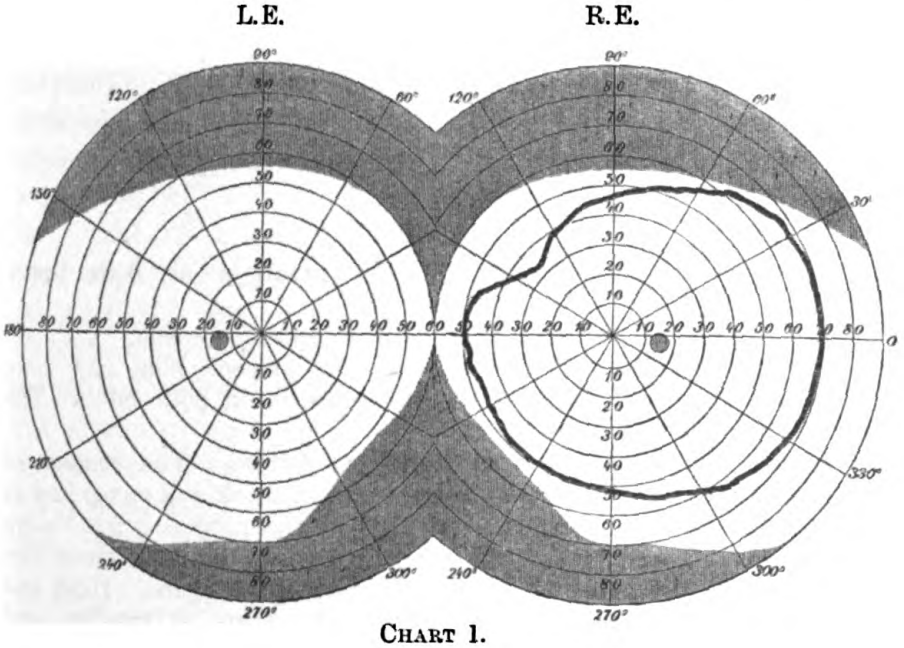


CHART 1.

before the sound eye and Cuignet's test failed to elicit binocular vision. With the ophthalmoscope the fundus of both eyes seemed to be quite normal; the veins of the left appearing to be more prominent than normal.

Careful examination of her made by me, 30th December, the day the eye examination was made, failed to elicit any indications of disorder of the nervous system. I advised her to enter the Neurological Institute for observation and study. She did not do so, and I next had news of her from Dr H. R. Charlton of Bronxville, 24th May 1910, who on that day sent her to the Institute. She said that early in January vision returned to the

left eye, and gradually improved for a month, since which time it remained stationary. The first symptom of spinal cord implication occurred 25th April 1910, and consisted of sensation of numbness in the left hand. Two days later there was paresthesia of the left foot, and the following day of the right foot and hand, and a sensation of tightness about the upper part of the legs, as if they were bound tightly with garters. Three days later there was sharp pain between the shoulders, and a stiffness of both legs that rendered walking difficult. This condition persisted for a fortnight. Then there occurred severe shooting pain in the back of the neck and head. Soon after this, there developed weakness first of the left upper extremity, then of the right upper extremity, and complete paraplegia, and relaxation of the sphincters. This occurred 15th May, five months after the first symptom (monocular blindness) had developed. The motor and sensory paralysis continued to grow more profound. On her entrance to the Hospital examination revealed the following:—

1. Complete paraplegia and flaccid paralysis of both upper extremities.

2. Relaxation of the rectal sphincter, retention of urine.

3. The knee jerks and ankle jerks were present, plus, and there was ankle clonus and the big toe phenomenon on both sides. The elbow jerks could not be elicited.

4. Sensory disturbance was noted as follows: The contact of cotton wool is felt all over the body. A pin prick was recognised as such all over the body. Above the level of the nipples it felt "more disagreeable." There was a narrow band of hyperesthesia about two inches wide at the level of the fourth intercostal space. Heat and cold were both interpreted as warm on the lower extremities, and correctly on the trunk and upper extremities. Articular sensibility was much diminished in all the extremities, muscle and pain sensibilities were very acute. That is, there existed tactile hypoesthesia below the fifth intercostal space. Thermanesthesia of the lower extremities, loss of articular sensibility in all the extremities and a narrow area of hyperesthesia above the nipple line.

5. Eyes: Corneal sensibility and mobility of the eyeballs normal. Pupils, right 3.5 mm., left 4.5 mm., both circular. Light reflex diminished in the right. Vision, right 20/30, left 20/200. Field of the right eye normal; of the left nearly normal for white, but for green there was a defect of the temporal half of the field including the fixation point and encroaching above to a slight extent upon the nasal half of the field. Fundus of the right eye normal. The left optic disc was pale, particularly the temporal segment, its margin blurred, and the arteries of the disc and of the neighbouring retina

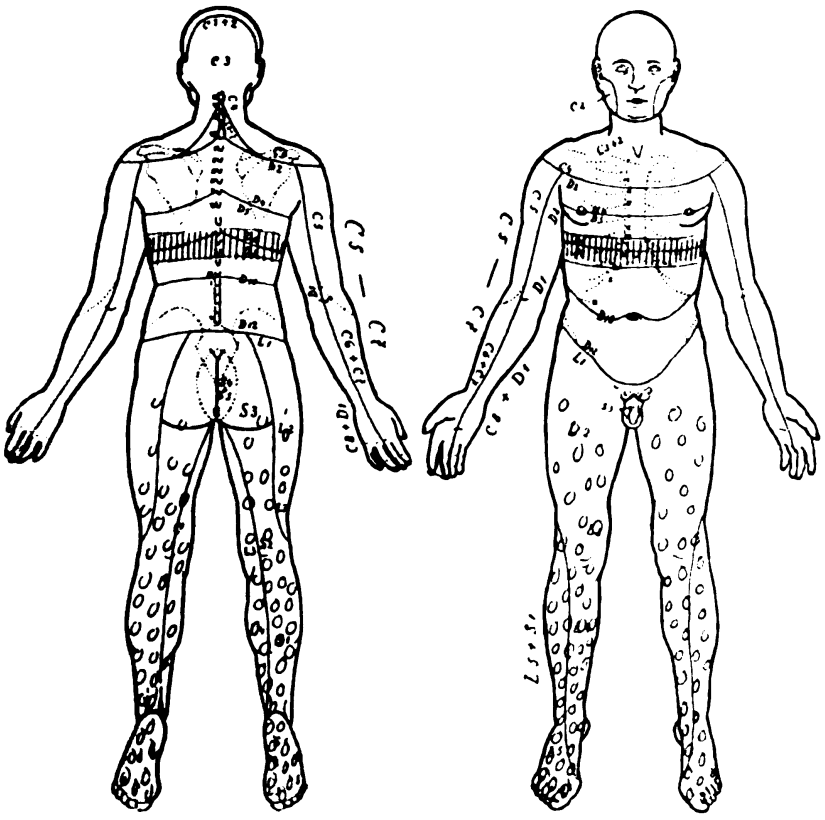
were bordered with white lines. The veins were of normal calibre and not tortuous.

6. Pronounced cardiac arrhythmia without detectible lesion with the stethoscope or sphygmograph.

7. Respiration was entirely thoracic and attempts at coughing were distressing, and without tone.

8. The urine contained albumin, its specific gravity being 1010.

9. The blood examination showed, erythrocytes, 4,160,000; leucocytes, 9,600; neutrophiles, 66; large lymphocytes, 18; small



CASE 1.

lymphocytes, 5; granular degeneration of the red blood cells, poikilocytosis, polychromatophilia, and anisocytosis.

10. The Wasserman reaction of the blood serum and spinal fluid was negative and there was increase of lymphocytes in the spinal fluid.

The patient's condition grew daily graver, especially symptoms indicative of upward extension of the lesion having developed, and after consultation with my colleagues I decided to have an

exploratory laminectomy done. On 30th May, four days after her entrance into the Hospital, the spines and laminæ of the fourth, fifth, sixth, and seventh cervical vertebræ were removed. The dura was pale and pulsating. A 2 mm. incision was made in the pia and a large quantity of cerebro-spinal fluid spurted out. The patient died four days later, respiratory paralysis being the immediate preceding condition.

No general autopsy was permitted, only a small portion of the cervical cord from the third to the sixth segments could be obtained for examination. The portion of the cord removed did not seem particularly abnormal to the naked eye until the fifth cervical segment was cut across. It was then seen that the consistency of the cord, particularly in the centre, was diminished, and that the colour was of a deep reddish brown. The meninges appeared to be quite normal. After it was hardened and stained, however, it showed an extensive area of softening with many hemorrhages. This area of softening extended longitudinally throughout the entire portion of the cord that was removed, but was most pronounced in the fourth cervical segment. Above and below this segment the intensity of the process diminished. On transverse section the foci of softening were most striking in the centre of the cord, involving not only the central grey matter but the lateral horns and white matter (Fig. 1).[1] Many vessels running from the pial sheath to the area of softening were to be seen (Fig. 2). These were engorged and surrounded by an intense cellular infiltration. The blood vessels in the softened area itself showed a pronounced cellular infiltration, there being countless fatty granular cells and large numbers of red blood corpuscles in various stages of disintegration (Fig. 3). None of the blood vessels was distinctly thrombosed. The destruction of nerve tissue in and around the area of softening was not very pronounced, but even here vessels showing infiltration of their walls and circumvascular exudate are to be seen. Sections stained according to the Marchi method did not reveal distinct secondary degeneration. Sections stained with Sharlach R. showed the granular cells to be filled with fat droplets.

This case may, I think, be looked upon as a case of acute myelitis, using the term in its etymological sense. Singer,[2] who

[1] I am indebted to Dr W. A. Holden for the accompanying illustrations of the lesions in this case.

[2] Singer, *Brain*, 1902, p. 332.

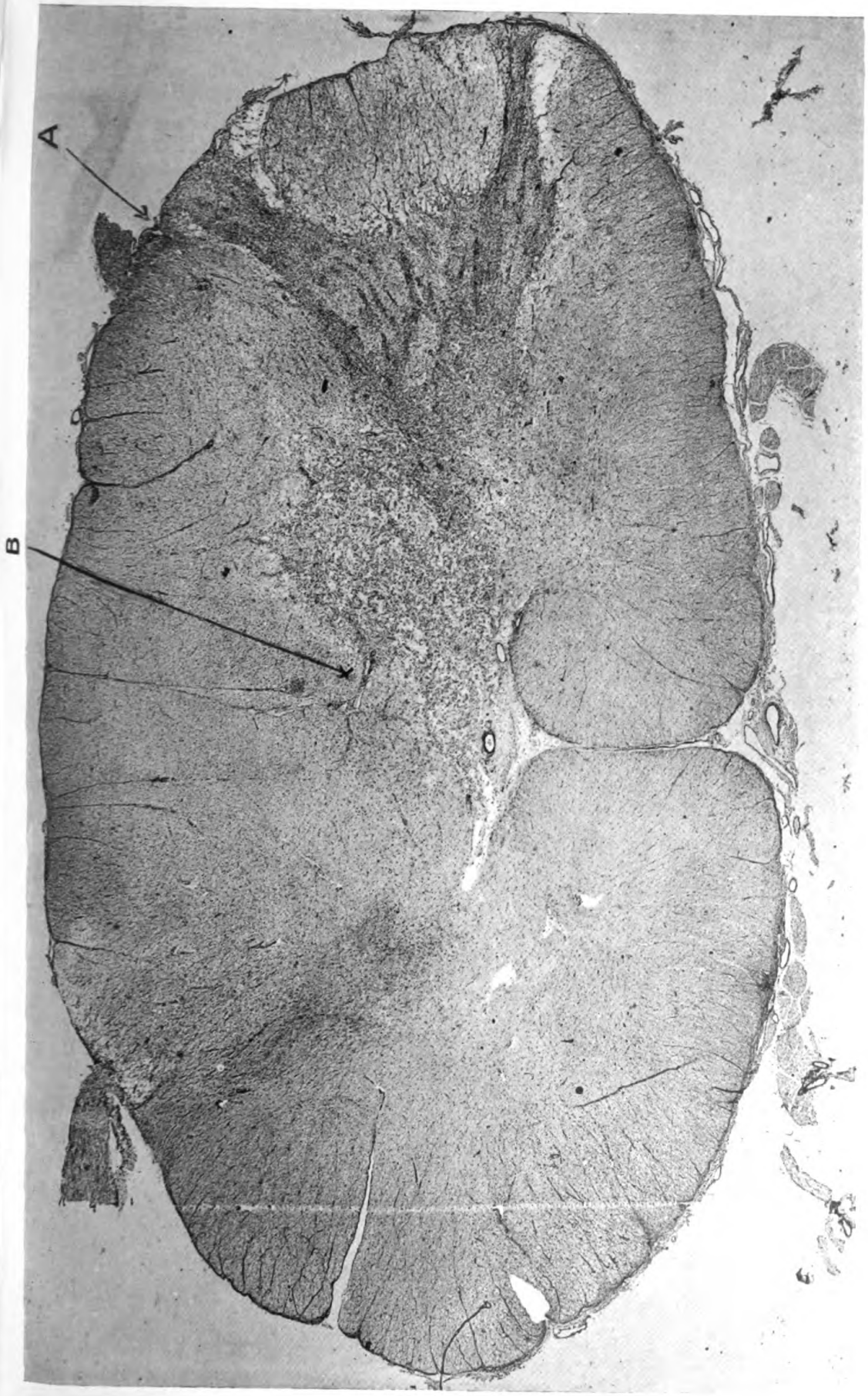


FIG. 1.

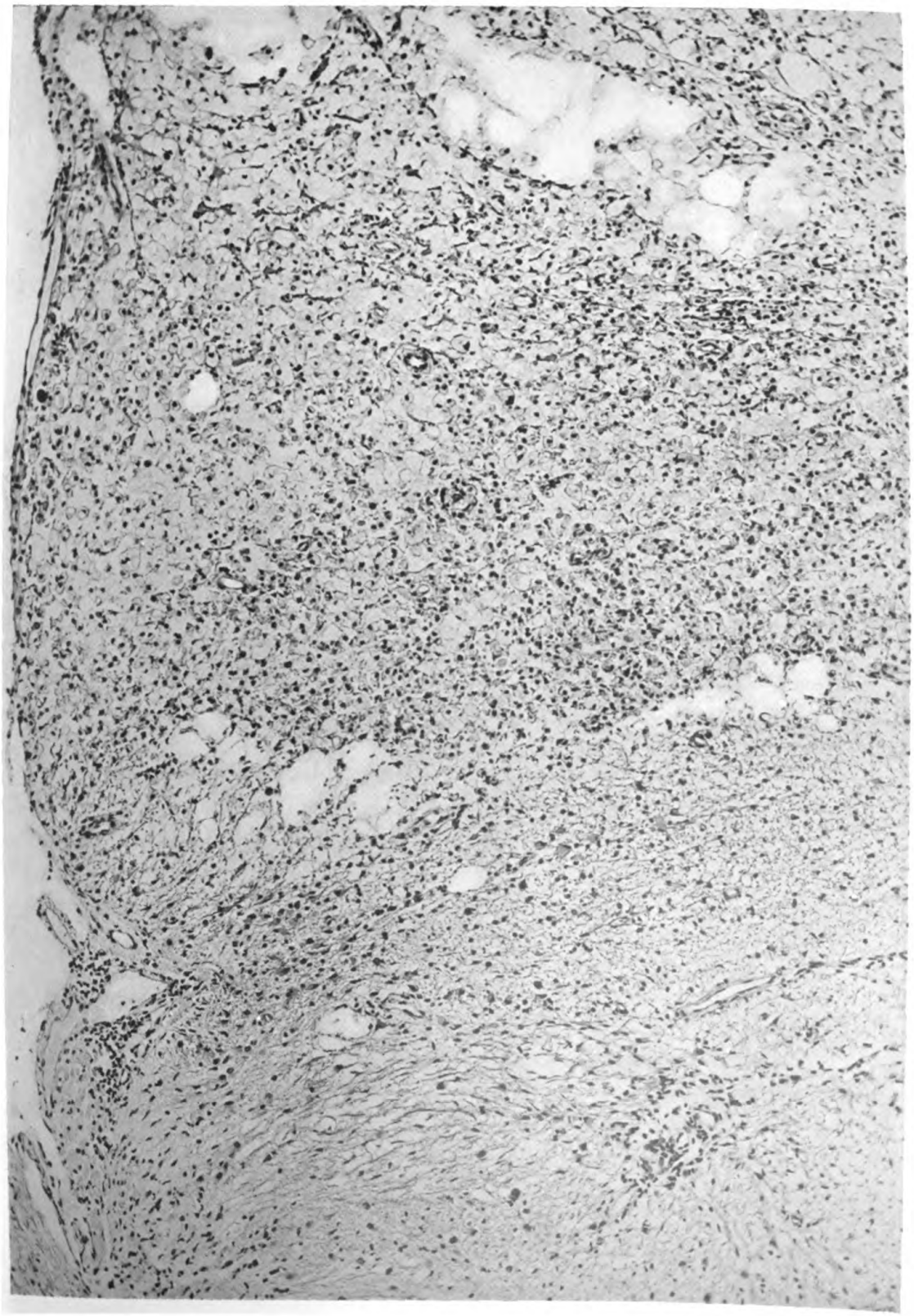


FIG. 2.

a few years ago wrote a paper in support of Bastian's views, stated that the presence or absence of a cellular infiltration was the chief criterion upon which the distinction of a purely thrombotic lesion from an inflammatory thrombotic was based. If we subscribe to this view, this case must be considered an acute myelitis. It is idle to speculate as to its cause. So far as could be determined the patient had had no experience that could be put in casual relationship to the disease, nor did study of the blood, spinal fluid, or excretions throw any light upon it. It may legitimately be surmised that the same toxic agency that caused the retrobulbar neuritis caused the myelitis.

The second case was that of a married woman, 38 years old, who was sent to the Neurological Institute, 25th February 1910, by one of my assistants, Dr H. Climenko. On 27th January 1910 she had given birth to her fifth child. Labour was easy, she had no disagreeable after-symptoms, and she got up a week later. Then she began to experience pain in the small of the back, which was severe and constant. The evolution of her symptoms then was in the following order:—

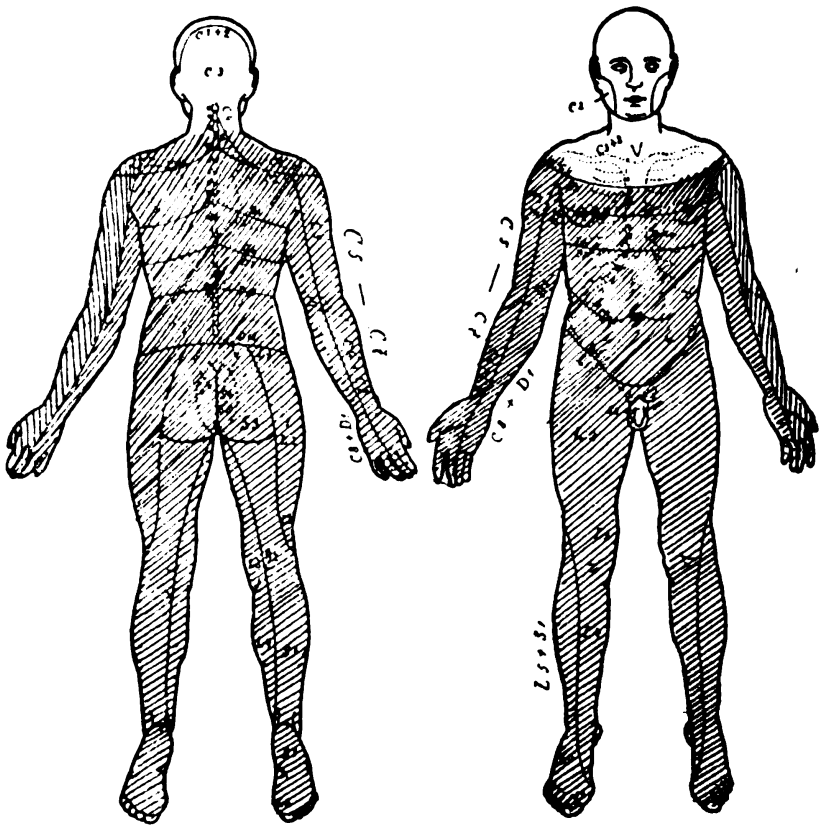
1. Pain in the small of the back.
2. Retention of urine and obstinate constipation.
3. Stiffness and weakness of the lower extremities.
4. Disagreeable sensation of numbness and tension in the lower extremities.

As the latter symptoms developed the pain in the back diminished and finally ceased. After 20th February, *i.e.*, two weeks after the onset of these symptoms, there were added:—

5. Tingling of the fingers and hands.
6. Weakness of the upper extremities.
7. Vomiting, and pain in the back returned.

On admission she was able to stand with support on either side, all the extremities being very weak, the legs more so than the arms. The knee jerks and ankle jerks were elicitable, neither exaggerated nor diminished. The abdominal and epigastric reflexes were absent on the right side, present on the left. The toes flexed on irritation of the soles. There was complete anesthesia and analgesia below the clavicle. Just above this there was a narrow band of hyperesthesia. Deep sensibility was disordered,

but how severely could not be determined. The optic discs were pale without alteration of the vessels. This paleness, which was corroborated at subsequent examinations, was interpreted by Dr Holden as degeneration of the nerves, although no history of previous disturbance of vision was obtained. The remaining cranial nerves seemed to functionate normally. The pulse rate was about 90, and the temperature normal; respiration 20.



Case 2.

The patient's condition became graver day by day. This is indicated by the following diary. 1st March: The anesthesia and analgesia now extend above the clavicles. The tendon jerks of the lower extremities are increased and there is distinct big toe phenomena and exhaustible clonus. 6th March: The patient has difficulty in opening the mouth and in swallowing. The paralysis of the extremities has become complete, she is still able to shrug the shoulders and to move. Respiration is laboured, and

FIG. 3.

FIG. 4.

FIG. 5.

the movements entirely thoracic. The Babinski phenomenon is elicitable on the left side, but not on the right. The knee jerks are no longer elicitable. The Wasserman reaction of the blood serum was negative, and the spinal cord fluid showed no evidences of inflammatory process or excess of lymphocytes. Repeated examinations of the blood and urine showed no noteworthy abnormality. Cultures of the blood were negative. The temperature ranged from 90°-100° F., and the pulse grew daily more feeble and irregular.

Although the diagnosis of acute myelomalacia was concurred in by the attending and consulting staff of the Hospital, it was decided to do an exploratory laminectomy, the possibility of an abscess being in mind, and the sensory disorder being so definitely delimited. The spines and laminæ of the fourth, fifth, sixth, and seventh cervical and first dorsal were removed by Dr Elsberg. The dura did not pulsate, but it felt abnormally tense. Death took place from respiratory paralysis the following day.

No general autopsy was permitted, but a portion of the cervical cord was obtained. This portion of the cord was soft and pulpy, and when cut across it scarcely conserved its shape and consistency. Its colour was reddish grey. The changes in the cord after it was hardened, cut, and stained are well illustrated by the accompanying photograph of sections. The area and softening and degeneration is most profound in the sixth cervical segment. Here there is a destruction and degeneration of the grey matter and lateral columns of the right side of the cord extending in a dorsal and ventral tongue to the pial sheath (Fig. 4). In the degenerated area the blood vessels are infiltrated, and there is great accumulation of cells outside the vessels percolating the substance of the cord. The pial sheath is slightly infiltrated at various points. The degeneration of the neural elements with glial overgrowth is very striking in the foci where the pial vessels are surrounded by cellular infiltrations. In these areas many spider cells are present, and there are numbers of gitter cells or fatty granular cells (Fig. 5). Section taken from the cord at a level of the first dorsal vertebra (Fig. 6) show a central degeneration with one ventral tongue extending to the pia on the left side of the cord and a dorsal marginal area of degeneration. The latter contains vessels with slight infiltrations about them, and there are present a few spider cells and a few fatty granular cells. The tissue is greatly rarified,

as is likewise the tissue bordering the larger areas in which the degenerative process is active. Fatty granular cells are abundant (Fig. 7).

The third case was one in which the transverse destruction of the cord was an expression of an extraordinary disease of the blood, and especially of the white blood cells hereinafter described.

The patient was a Russian Jew, 29 years old, who was admitted 23rd January 1911. His complaint was:—

1. Inability to stand or walk.
2. Inability to void urine or fœces.
3. Pain in the middle of the back. This pain was not severe, but at times subject to exacerbations.
4. A sensation as if the feet and legs were asleep, occasionally as if the legs were being squeezed.

These symptoms developed abruptly, ten days before coming to the Institute. During the first week of this time he was able to get about, so that in reality it was not until four days before coming to the Hospital that he became paraplegic.

His history was uninteresting, save in one particular, and that was, that he recalled on close questioning that seven weeks before the beginning of his ailment he had had what he called sticking pains in the left side of the abdomen in the region of the stomach. These pains continued more or less for three weeks. They were not severe, but, nevertheless, he consulted a physician who prescribed for him, and soon after that they subsided. He denied syphilitic infection, and aside from having had his legs frozen when a boy, 12 years old, he did not recall ever having been ill. He had served as a soldier in the Russian army for three years (from 21 to 24), and after that he came to New York and began work as a picture frame gilder. This occupation necessitated the use of amyl and methyl alcohol. The first subjective symptom of the illness which he had when he came to the Institute was a sharp, cutting, shooting pain in the small of the back, and in the left side. Two or three days later, his legs began to tingle and to feel as if they were asleep. Almost immediately he began to complain of weakness of the legs, and this continued to increase until at the end of the sixth day he was unable to stand or walk. From this time onward he was unable to void urine, and he had to be catheterised. By the time he was brought to the Hospital he had a weak, ineffectual hacking cough and constant dyspnea.

PLATE 12.

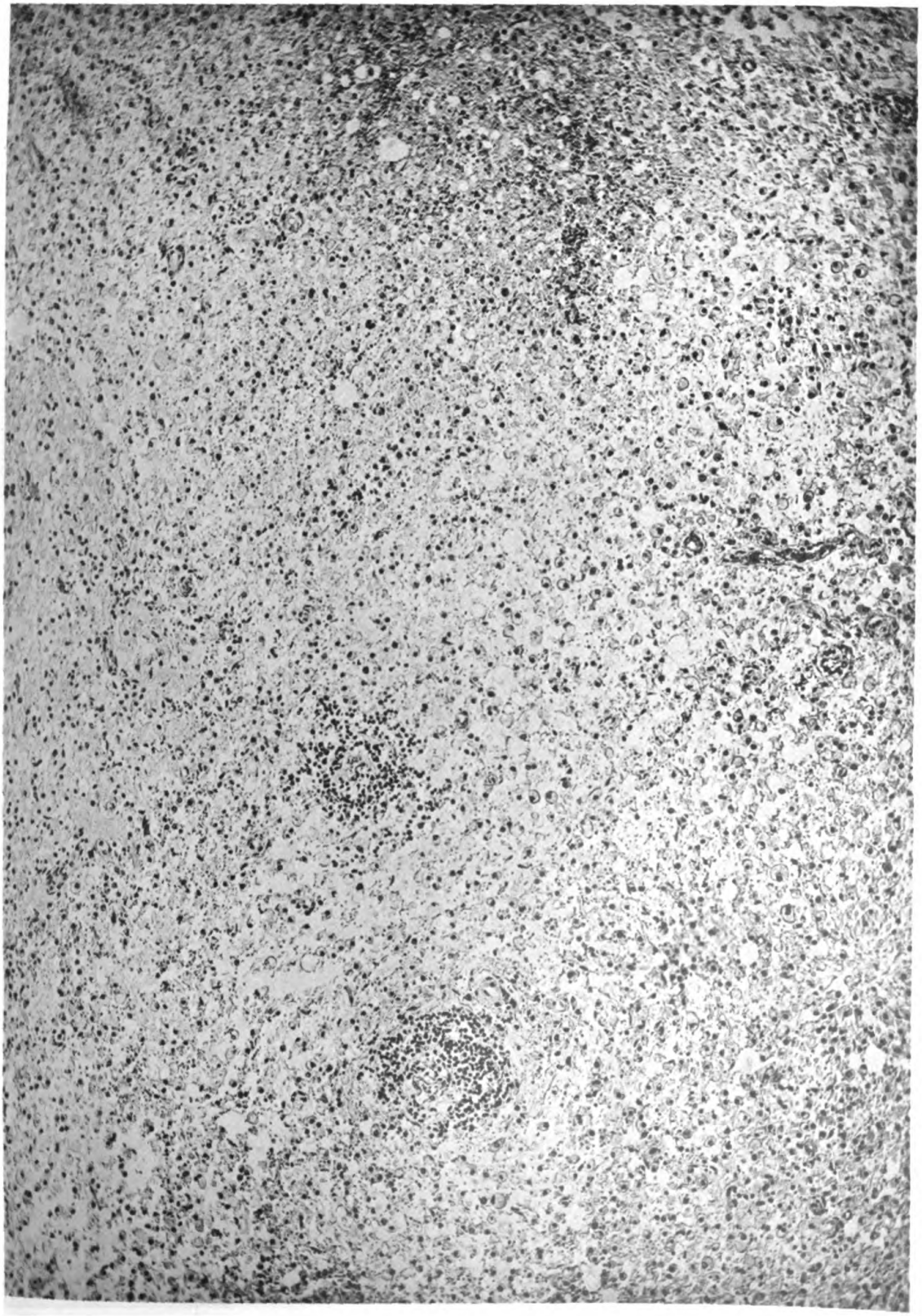
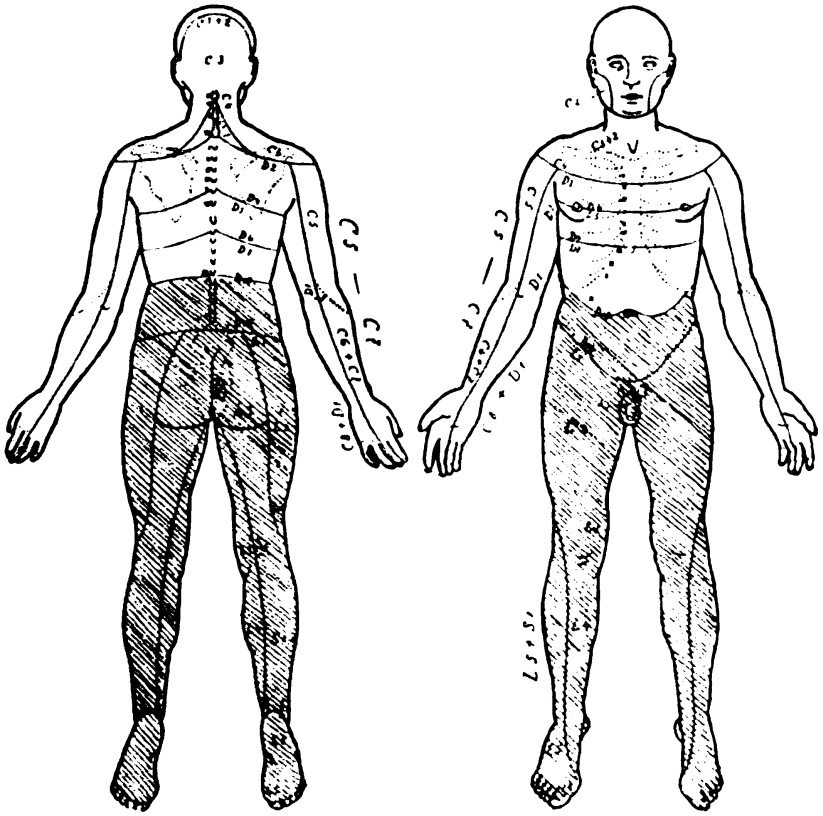


FIG. 7.

FIG. 8.

Examination showed that both lower extremities were flaccid, and totally paralysed. The knee jerks and ankle jerks were absent. The plantar reflexes, the abdominal and the epigastric reflexes were not elicitable. The sensory disturbances which are represented in the accompanying chart showed an analgesia extending to the umbilicus.

The upper extremities seemed to be quite normal. The pupils



Case 3.

were circular, they responded to light and accommodation and the ophthalmoscopic examination showed the optic nerves to be of normal appearance.

The respiration was short and diaphragmatic. Examination of the chest revealed sonorous and sibilant rhonchi over both lungs, most marked in the upper portion of the right lower lobe. On percussion there was moderate dulness over the lower half of the right lower lobe. This was taken to indicate a broncho-

pneumonia. The temperature was 102° F. at this time; the next day it was 104° F.; the following day 106° F.

The blood examination at this time revealed the following:—

Hemoglobin	70 per cent.
Red blood cells	3,776,000
White „	28,800
Differential count—	
Neutrophiles	50 per cent.
Eosinophiles	16 „
Basophiles	0 „
Large lymphocytes	14 „
Small „	10 „
Transitional	10 „

There were few normal white constituents.

The majority of the neutrophiles possessed nuclei which differed from those of the neutrophiles encountered in ordinary acute infections and from the nuclei customarily found in myelocytes.

They were cells in the earlier stages of transition from myelocyte to polymorphonuclear cell, with nuclei only fairly well differentiated from the cytoplasm, with a regular round or nearly round contour.

The youngest neutrophiles found in this patient's blood, the uninuclear variety, differed from any of the cells described and pictured by Arneth, in that their nuclei were more nearly circular and the cell itself approached the myelocyte type closer than any of the cells observed by him.

In addition to these a great number of mature myelocytes of the neutrophile and eosinophile type were to be seen.

The red blood cells showed a profound polychromatophilia, and a few normoblasts were present.

At this time the spleen could not be palpated, nor could any area of splenic dulness be determined on percussion. The patient constantly complained of pain in the region of the spleen.

The next day it was noted that over the basis of both lower lobes posteriorly the percussion note was somewhat dull. Anteriorly, the percussion note was higher pitched over the right and over the left side. The respiratory sounds over most of the right lung were short in duration and feeble in character. The patient's cough was weak and ineffectual. The pulse was weak and rapid, at times irregular and intermittent.

The next day the patient died with all the manifestations of a vague inadequacy and pulmonary œdema.

Examination of the cerebro-spinal fluid showed that there was a great excess of globulin, no cells, a negative Wasserman reaction, and negative Fehling. The urine was practically of normal condition. The Wasserman serum reaction was likewise negative.

It was quite evident from examination of the blood irrespective of the objective signs indicating destructive lesion of the spinal cord that his real disease was some grave disorder of the blood, primary or secondary to an undetected infection. A blood culture gave no growth. The blood condition was considered a serious one, because of the various myelocytes, and the presence of very young neutrophiles. Although hematologically such a blood picture cannot be classed among myelogenous leukæmias nor as the acute variety of this disease, in view of the fact that the large number of young neutrophiles constituted the chief feature of the blood anomaly, I believe it is not unsafe to classify this blood finding as a new hematological entity, and for the want of something better, would designate it as a promyelocytic leukæmia containing promyelocytes as described by Dr D. M. Kaplan in the "Folia Hematologia," Vol. vii., 1909.

The mechanism producing the transverse myelomalacia is shown by the pathological findings in the cord. It is more or less of a speculation to explain the etiology of the blood disorder. It is, however, not unsafe to regard an infection as responsible for its production. In this case particularly, the grave infection overwhelmed the hœmatopoietic apparatus which hurried to defend the organism by putting out a large force of young phagocytes. It was pointed out by Dr Kaplan in the *New York Medical Journal* on the 13th April 1907, that the most potent leucocyte, from the phagocytic point of view, is the youngest representative of the neutrophiles. This cell is capable of engulfing almost twice as many staphylococci as any other cell. Hence, when a large number of these cells are encountered, it is logical to conclude that their presence is for phagocytic purposes, in other words, severe infection is present. Together with full-fledged eosinophilic and neutrophilic myelocytes, as well as the hyperleucocytosis, an ordinary infective leucocytosis is out of the question, and the condition in our opinion can only be classed among the leukæmias,

and in view of the presence of the young elements mentioned, the name promyelocytic leukæmia is suggested.

Again we were unable to get permission to make an autopsy. Those who have had experience with the class of patients represented by the three whose illnesses are here described, know that it is next to impossible to get the family to consent to a post-mortem examination. A piece of the cord about five inches long was removed from the dorso-lumbar region.

Sections of it show complete destruction of the elements of the cord in the manner of an acute softening process (Fig. 8). The dura is slightly thickened, and on its external surface (Fig. 8, c) is dotted with an exudate undergoing necrosis. The exudate occupies almost completely the subdural space, forcing its way into the interstices between the sheaths of the spinal roots, and although it is frequently seen in process of organisation as evidenced by the formation of connective tissue fibres and small vessels, it is generally undergoing granular degeneration (Fig. 9). The root axis cylinders are swollen, tortuous, the myelin sheaths are swollen and distorted, there is a very widespread loss of the myelin itself, and the small vessels are dilated and distended, and give clear evidence of compression. The nuclei of the spinal roots are for the most part well preserved with very little proliferation. In some instances the exudate (Fig. 8, B) has pushed into the centre of the root evidently by way of the vessels, and produced small areas of necrosis. The pia arachnoid is thickened and has become glued together by the same process. There is complete widespread degeneration of the substance of the cord in which the topographical landmarks can no longer be recognised. The whole transverse section of the cord presents a pale, washed-out appearance with a poor tinctorial reaction, very few evidences of acute inflammatory reaction and vast numbers of granular cells here and there, and poorly stained ganglion cells, the outline and nuclei of which are hardly visible.

The myelin spaces of the white matter are dilated often enormously, and usually present the appearance of empty spaces but sometimes contain swollen, granular, and twisted axis cylinders; or a granular detritus. In some instances through the amalgamation of several myelin spaces there is a dilation almost the size of the field. Many of the poorly stained ganglion cells are swollen and dotted with small vacuoles. There are small punctuate

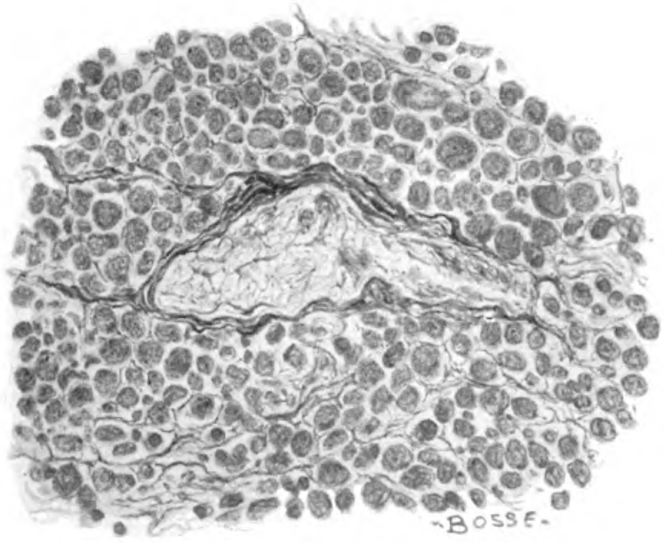


FIG. 9.

hæmorrhages throughout the entire substance. These hæmorrhages are nearly always accompanied by masses of hæmatogenous pigment. The most profound changes are to be seen in the vascular supply. The veins are everywhere dilated, filled with blood, which in many instances is escaping in the surrounding tissue.

The intima of the veins is usually more or less compressed and degenerated; the media shows a great loss of muscular elements with thickening and hyperplasia of the connecting tissue elements. The arteries are frequently the seat of profound endarteritis obliterans with swelling and thickening of the intima which frequently occludes the lumen, and in some instances shows actual organisation of a thrombosis. The larger veins in the membranes are enormously dilated, the intima is compressed together so as to form a hardly distinguishable line of cells. The elastic coat is broken up and frequently shows granular degeneration.

Some of the smaller arteries in which the process of thrombosis is most profound, showing an acute process in the entire arterial wall. The organisation of small lymphocytes proliferation of connected tissue cells and occasionally a cell which resembles very closely a plasma cell. In some instances this process is connected to the pia-arachnoid which shows an acute inflammatory process and formation of new connected tissue cells and fibres.

It is impossible because of profound post-mortem changes to recognise any of the leucocytic changes found in the examination of the fresh blood.

The condition in the cord is that of complete transverse myelomacia, the result of severe toxic disturbances and acute thrombosis of the vessels.

Naturally, there are cases of thrombosis of the vessels of the cord leading to myelomalacia, and instances of rupture of sclerotic blood vessels leading to softening that simulate acute myelitis, but many of them may be and should be diagnosticated. Seven years ago I published, in conjunction with Dr E. G. Zabriskie, an article on arteriosclerosis of the spinal cord in which we stated that our reasons for believing that arteriosclerosis of the spinal cord was a condition that was as susceptible of diagnosis as cerebral or renal arteriosclerosis. Our experience since then confirms our view. It is not necessary to wait until the arteries are thrombosed or ruptured before diagnosis is made. When they have thrombosed

or ruptured and the clinical picture is one of transverse myelitis the diagnosis can sometimes be made. It cannot be based on the symptoms caused by the transverse lesion but upon the symptoms that preceded these and upon the accessory symptoms. For instance the following case:—

1st October 1910, a stone-cutter, 55 years old, was admitted to the Neurological Institute. His complaint was:—

1. Inability to stand or walk.
2. Difficulty in using the hands because he hasn't got the "right feeling" in them. The right worse than the left.
3. Dyspnœa without effort, "a taste of the asthma."
4. A sensation in the legs, feet, and hands as if insects were crawling beneath the skin.
5. A sense of distension in the abdomen.

These symptoms had been in existence for eight days when I saw him, but on inquiry I learned that he had not been well for a year; in that time he had lost at least fifty pounds in weight. He often complained of fatigue in the legs without attributable cause; he was so worn out on coming home in the evening he would often lie down before his dinner; and he was accustomed to get up at least twice at night to urinate, all most significant symptoms of the generalised arteriosclerosis which examination revealed. The spinal cord symptoms were interpreted as expressions of arterial degeneration in that organ. The course of the disease was typically that of Landry's paralysis, and the patient died twelve days after the acute symptoms had developed.

In such a case there existed undoubtedly areas of softening in the cord, but one does not think of these as constituting the anatomical basis of myelitis.

Considering the fact that at one time or another every disease of the cord has been called myelitis it is not surprising that the term is still used with much latitude. Myelomalacia of vascular origin may be differentiated from myelitis, especially if it be of slow onset. It would help materially to clear the atmosphere if we could restrict the use of the term myelitis to inflammatory states of the cord incident to infection, and not dependent upon coincident diseases of the blood vessel. Of course, in many instances we should be unable to say what the infection is. In

none of the three cases that are reported herewith did we gather any information as to the real source of the infection in any instance.

Description of Figures.

Fig. 1. Transverse section through sixth cervical segment. A, Dorsal tongue extending to pia; B, Diseased vessel at margin of softened area.

Fig. 2. Higher magnification of area at A in Fig. 1, showing gitter cells and spider cells.

Fig. 3. Higher magnification of area at B in Fig. 1, showing infiltrated vessel, fatty granular cells, and spider cells.

Fig. 4. Transverse section of cord at the level of first dorsal vertebra, showing central degenerated area, ventral tongue, and an area on the left postero-lateral region.

Fig. 5. Higher magnification of left postero-lateral region of Fig. 4.

Fig. 6. Transverse section through the dorsal region of the cord, showing central degeneration and intense infiltration of the vessels.

Fig. 7. Higher magnification of Fig. 6, showing infiltration of the vessels and predominance of fatty cells and a small hæmorrhage.

Fig. 8. Transverse section, showing complete destruction of the elements of the cord. A, Exudate undergoing necrosis; B, Exudate infiltrating spinal root; C, Epidural exudate. Magnification 15×.

Fig. 9. Area in exudate, showing cells in necrosis, and a newly formed vessel.

MYXŒDEMA FOLLOWING EXOPHTHALMIC GOITRE: MENTAL SYMPTOMS; DEATH FROM CARDIAC SYNCOPE; HÆMORRHAGE INTO THE NUCLEI OF BOTH VAGI.

By A. NINIAN BRUCE.

The following case is of special interest on account of certain nervous lesions which were found after death.

The patient was a woman, aged 46, who was admitted to the Royal Infirmary, Edinburgh, with marked symptoms of myxœdema. Her illness was of about six years' duration. She was a domestic servant and unmarried. Her work had always been hard, as she had been thrown upon her own resources at a comparatively early period of life, and although she was of a distinctly nervous disposition and easily excitable, no history of fright or any sudden strain, apart from the above, could be discovered. She had no brothers or sisters, and her father and mother both died young from unknown causes.

Her present illness began gradually after several years' continuous work without rest. She became nervous and unsettled, and suffered from attacks of palpitation which increased both in number and in duration. No signs of exophthalmos appear to have been noticed until two and a half years later, when her friends began to remark that her eyes appeared unduly prominent, but this was never a pronounced symptom with her. Four years after the beginning of her illness she began to suffer from a feeling of tightness and pain in her throat, a feeling which was usually much aggravated during the attacks of palpitation. She became gradually less able for her work and after four and a half years was forced to leave service and came to the Royal Infirmary, Edinburgh. At this time she presented a more or less characteristic clinical picture of exophthalmic goitre, the most prominent symptom being tachycardia, and the least exophthalmos. The thyroid was considerably enlarged, especially the right lobe and isthmus. She was noticed to perspire profusely during the night.

With rest and good feeding she improved greatly. The administration of rodagen was followed by diarrhœa and caused no improvement. The swelling in the thyroid gland distinctly diminished and she left hospital much improved.

She returned to work as a domestic servant, and remained well for about six months, when the attacks of palpitation again commenced, and became more and more frequent. She was often so weak after an attack that she was unable to work for several days. Besides the breathlessness and pain which these attacks occasioned, they were often accompanied by great pain in the head, mostly frontal, but sometimes diffuse. She became very anxious about herself, and her friends noticed that she lost interest in everything. She dreaded the attacks, brooded over them during the day, and dreamed about them at night. And these symptoms became still worse when she suddenly fainted one day during one of these attacks.

She now went to stay with a friend, and it was noticed that "she was not at all herself." She had lost her memory, did not know the days of the week, and often did not know where she was. She began to imagine that her friends wished to harm her, and became suspicious of everyone and everything. The fits of palpitation became more frequent, usually arising suddenly, and

without any previous warning, although any small exertion seemed to be sufficient to cause them; they were often accompanied by unconsciousness, and she several times injured herself from falls. Her friends became very alarmed about her, not only on account of these attacks of fainting, but also that she might do herself an injury, either accidental or intentional, while alone, and accordingly arranged for her to be sent to the Royal Infirmary.

On examination her heart was found to be considerably dilated, very irregular in rate and in strength, and the sounds were feeble. There was a mitral systolic murmur present. The thyroid gland had shrunk considerably. The eyes were sunken. There was some swelling of the arms and legs, but not of the face. The amount of hair on the head was scanty, especially over the frontal region. The skin was dry and thickened. There were marked tremors present upon holding out the hands. She was very emaciated, and quite unable to give any information about herself. She was suspicious of everyone who came near her, and thought she was followed by persecutors who wished to kill her. She refused to eat as she believed the food to be poisoned.

During the next few days in hospital she had several fainting attacks, the maximum number in one day being three. They appeared to be liable to follow any slight exertion on her part, and increased in number during the following week. Her heart became more and more rapid and irregular. A fortnight after admission her temperature rose somewhat suddenly to 105°, she became unconscious, and died thirty-six hours later.

At the autopsy the brain and spinal cord were removed and placed in 10 per cent. formalin. Numerous small hæmorrhages could be seen by the naked eye, both in the brain and in the spinal cord. Upon microscopic examination a degeneration of the cells of the intermedio-lateral tract was found very similar to that described by the late Dr Alexander Bruce in this *Review* (1907, p. 1); but it was also noticed that a number of the large motor cells in the anterior horns of the grey matter showed similar changes. (A full description of these changes will be published at a later date.)

The most marked vascular changes, however, were found in the medulla oblongata along the floor of the fourth ventricle. The vessels were dilated, thickened, and showed hyaline degeneration. Numerous hæmorrhages could be seen by the naked eye.

Several of these were very extensive and were of both old and recent date, as some had produced great changes in the grey and white matter in their immediate neighbourhood and were obviously not recent.

The nucleus of the left vagus nerve had been almost completely destroyed by a single large hæmorrhage, and four smaller hæmorrhages were found in the nucleus of the right vagus. None of the cells in the left nucleus could be discovered, and those of the right nucleus were few in number and showed marked chromatolytic changes.

Klein[1] has collected a series of 37 cases in which changes in the central nervous system have been recorded, and in 15 of these a lesion in the neighbourhood of the floor of the fourth ventricle was present. In the cases of Siemerling, Müller (*bis*), Farner, and in a case recorded by Dana, hæmorrhage into the tenth nucleus has been specially noted. The interest lies in the fact that the tenth nucleus undoubtedly belongs to the same system of nerve-cells as the intermedio-lateral tract, which is the spinal localisation of the sympathetic system. Changes in the cells of the sympathetic ganglia in exophthalmic goitre have been recorded by many observers, especially in the cervical sympathetic; but we are not yet in a position to understand or interpret the full significance of these changes. It is, therefore, of importance to note that degenerative changes may also be found in the cells of the central nervous system which represent their spinal localisation.

[1] *Deut. Ztschr. f. Nervenheilk.*, Bd. 25, 1904, p. 431.

Abstracts

ANATOMY.

CORTICAL CELL LAMINATION OF THE HEMISPHERES OF
(184) **PAPIO HAMADRYAS.** E. H. J. SCHUSTER, *Quart. Journ. of Micros. Science*, Vol. 56, Part 4, June 1911.

IN this paper thirteen types of cell lamination are described, and the area occupied by each on the surface of the hemisphere is, as far as possible, mapped out. How far the different varieties dealt with correspond in structure and position with those described by Campbell in the chimpanzee and orang-outan and by Brodmann in cercopithecus is discussed in most cases. It will be noticed that the number of types distinguished is considerably less here than in the paper of Brodmann referred to. This the author attributes to a difference in judgment, and not to antagonism with regard to matters of fact. The types of cell lamination described are each illustrated by drawings in black and white. Each cell in a strip of cortex was outlined under the Abbé Zeichen apparatus in its proper position relative to the others, and the outlines were afterwards blocked in with ink, so that the cell is represented in silhouette. AUTHOR'S ABSTRACT.

PHYSIOLOGY.

VARIATIONS IN THE EXCITABILITY OF THE VAGUS CENTRE
(185) **DURING THE TWO PHASES OF RESPIRATION. (Variazioni dell' eccitabilita del centro del vago nelle due fasi della respirazione.)** GIUSEPPE EPIFANIO, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 1, Feb. 8, 1912.

CHLORALISED dogs were used. The carotid having been connected with the recording apparatus, the author stimulated the muscular sense nerves by tapping the quadriceps tendon sufficiently hard to obtain a well-marked knee jerk both during expiration and inspiration.

Using this strange method of stimulation he finds that the vagus centre shows a marked excitability to sensory stimuli during the first moments of expiration. This excitability is manifested by inhibition of the cardiac systole, amplification of the diastole, and retardation of beat. During inspiration and the later phases of expiration the vagus centre did not respond to the sensory stimuli used by the author. F. GOLLA.

PSYCHOLOGY.

A STUDY IN DELUSION FORMATION. DONALD FRASER, *Journ. of*
(186) *Abnorm. Psychol.*, Feb. 1912, p. 401.

AN attempt is here made to trace the psychogenesis of two instances of delusion-formation. The author states that he is not disposed to accept the teaching of Freud as to the importance of infantile sex impulses, but he gives neither any reason for not doing so, nor any evidence that he had investigated the matter in his cases. ERNEST JONES.

ANALYSIS OF AN INSTANCE OF NAME-FORGETTING.
(187) (**Analyse eines Falles von Namenvergessen.**) ERNEST JONES, *Zentralblatt für Psychoanalyse*, Jahrg. ii., S. 84.

THE analysis is here given of an instance of apparently inexplicable amnesia, it being shown that the unconscious mechanisms and motives determining it were of a high degree of complexity. The underlying structure is the same as in the case of a hysterical amnesia. AUTHOR'S ABSTRACT.

CLINICAL NEUROLOGY.

AN ACCURATE METHOD OF ESTIMATING THE VIBRATORY
(188) **SENSE.** J. LL. M. SYMNS, *Brit. Med. Journ.*, March 9, 1912, p. 539.

THE ordinary method of investigating the vibratory sense does not show the abnormal states which precede its complete or almost complete disappearance. The author, accordingly, uses the tuning-fork introduced by Edelmann of Munich for use in Schwabach's aural test for the absolute bone conduction of hearing. Its vibration frequency is 108·75 per second. Two pieces of steel are attached to the upper portion of the fork in such a manner that when the arms of the fork are vibrating a small window is seen between them; this disappears when the vibrations of the fork reach a definite amplitude. The moment that the window disappears the fork is applied to the subcutaneous bony point, and the patient instructed to give a signal when he ceases to appreciate the vibration. The time is accurately counted by a stop watch. The average period that elapses before the sensation disappears at each bony point is recorded, and it is found that this period is less over the sacrum and anterior superior spines than over other bony points. The results are expressed graphically.
A. NINIAN BRUCE.

AN EXPERIMENTAL STUDY OF THE PAIN-SENSE IN THE
(189) **PLEURAL MEMBRANES.** JOSEPH A. CAPPS, *Arch. of Intern. Med.*, Vol. 8, Dec. 1911, p. 717.

THIS paper needs study in the original. Capps treats at much length the anatomy and physiology of the pleura, and the

mechanism of the production and localisation of pain in affections of the various regions of the pleural membranes. He has specially investigated the distribution of the pain in about 240 cases of pleuro-pneumonia and pleurisy. The greatest interest, however, attaches to the method adopted by him in his experimental inquiry. He inserts a good-sized trocar into the thorax in cases of pleural effusion, and withdraws the point. Before much fluid escapes, a long stiff wire with a dull point is passed through the canula, and the cavity therewith explored. The lung is easy to distinguish by its spongy resistance. The parietal pleura can be reached at one or more points distant from the canula, where the wire becomes visible, pressing out an interspace. Diaphragm is recognised by its firm resistance and its excursion with respiration, the wire moving in and out like a piston. Pericardium imparts a more rapid impulse, synchronous with the heart-beats. Out of 75 thoracocentesis operations only 35 presented conditions favourable for free exploration. The pericardial pleura was more difficult to test than any other pleural membrane. Capps concludes:—

1. The visceral pleura has no pain-sense. 2. Irritation of parietal pleura gives sharp pain accurately located by patient over spot touched; referred pain in neck or abdomen never occurs. 3. Central portion of diaphragmatic pleura is supplied by phrenic; its irritation gives true referred neck-pain. 4. Peripheral rim of diaphragmatic pleura is supplied by lower six intercostal nerves; its irritation gives pain in lower thorax, lumbar region, or in abdomen. 5. Pericardial pleura is supplied chiefly, if not exclusively, by phrenic; its irritation gives true referred neck-pain. 6. In a large series of cases of diaphragmatic pleurisy, about one-half had neck-pain; the large majority had pain in lower thorax, abdomen, or lumbar region. 7. A few observations suggest that the phrenic and intercostal nerves supply the peritoneal surface of the diaphragm with pain-sense, as well as the pleural. Many diagrams given; Fig. 1 shows clearly the mode of testing the pleura for sensibility. LEONARD J. KIDD.

A RARE FORM OF FIBROMA MOLLUSCUM ON THE EYELID.

(190) **(Eine seltene Form von Fibroma molluscum am Augenlid.)** VELHAGEN, *Centralbl. f. Augenheilk.*, 1912, xxxvi., p. 33.

THE patient was a weak-minded peasant woman, aged 60, who had first noticed the tumour thirty years ago. She had also a small nodule on the upper lip and about ten angiomata and molluscous growths on the neck. Examination showed the tumour on the eyelid to be a neurofibroma. J. D. ROLLESTON.

LUMBAR PUNCTURE IN URÆMIA. (La ponction lombaire dans
(191) **l'urémie nerveuse.)** CARRIEU, *Rev. de méd.*, 1911, "Jubilé du Prof. Lépine," p. 138.

CARRIEU discusses the value of lumbar puncture in uræmia from the diagnostic, prognostic, and therapeutic aspects, and comes to the following conclusions: 1. The presence of 50 cg. of urea in the cerebro-spinal fluid associated with more or less definite symptoms of nervous uræmia should confirm the diagnosis. 2. In the prognosis several other factors must be taken into consideration besides the amount of urea in the cerebro-spinal fluid. 3. Lumbar puncture is useful in the treatment of uræmia either by removing toxines or by facilitating the cerebral circulation.

J. D. ROLLESTON.

WASSERMANN'S REACTION IN TABES. (La reazione di Wasser-
(192) **mann nella tabe dorsale.)** F. BONFIGLIO and F. CONSTANTINI, *Riv. ital. di Neuropat., Psichiatr. ed Electroter.*, 1912, v., p. 16.

IN 20 cases of tabes the serum gave a positive reaction in 18 (90 per cent.) and a negative in 2 (10 per cent.); the cerebro-spinal fluid gave a positive reaction in 11 cases (55 per cent.) and a negative in 9 (45 per cent.).

These results differ from those of Nonne and Holtzmann who found that the cerebro-spinal fluid in tabes gave a positive reaction in only 6 per cent.

The writers conclude that Wassermann's reaction in tabes is as a general rule the same as in general paralysis.

J. D. ROLLESTON.

MYELITIS FOLLOWING ERYSIPELAS. (Un cas de myélite post-
(193) **érysipélateuse.)** LESNÉ and FRANÇON, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 138.

A WOMAN, aged 53, in convalescence from an ordinary attack of facial erysipelas, developed retention of urine and loss of power in the lower limbs. Deep bed-sores developed over the sacrum. The temperature became hectic and death took place a month after the onset of myelitis. The cerebro-spinal fluid withdrawn on several occasions was clear and contained numerous lymphocytes.

The necropsy showed an area of suppuration extending from one of the bed-sores through the sacral foramina to the subarachnoid space at the level of the lumbar cord. The lesions in the cord itself were situated in the dorso-lumbar region and consisted in the disappearance of a large number of cells in the antero-external and antero-internal groups.

The pathogenic micro-organism could not be demonstrated, as cultures of the brain and cerebro-spinal fluid as well as sections of the cord were completely negative.

Possibly toxins might be responsible, as myelitis has been produced in animals by streptococcal toxins.

J. D. ROLLESTON.

ON THE VASOMOTOR RESPONSE OF THE LIMBS TO REFLEX, EMOTIONAL, AND VOLUNTARY EXCITATIONS STUDIED IN CASES OF HEMIPLEGIA. (Sul comportamento della circolazione degli arti verso l'eccitazioni riflesse, emozional e volonatie studiato negli emiplegici in riguardo alla sede dei centri vasomotori.) P. TULLIO, *Riv. di Patol. nerv. e ment.*, Vol. 16, Fasc. 12, Dec. 1911.

(194)

THE author employed the Mosso plethysomograph adapted to the limb by means of putty. It was found that thermal stimuli applied to the mid line of the body or to the sound side in cases of hemiplegia produce vasomotor responses in the forearm which are equal on either side. Electric cutaneous stimulation applied on either side of the body or in the mid line evoke an equal response in either forearm in cases of hemiplegia. This response is generally of the nature of a vasoconstriction. Sound stimuli such as that caused by the breaking of glass give rise to an equal bilateral vasoconstriction in hemiplegics. Sometimes a movement of the paralysed arm occurs in response to the stimulus. Psychical activity caused by mental arithmetic gives rise to an equal constriction on both sides in the hemiplegic. F. GOLLA.

PNEUMONIC HEMIPLEGIA. (De l'hémiplégie pneumonique.) S. BERNHEIM, *Rev. de Méd.*, "Jubilé du Prof. Lépine," 1911, p. 72.

(195)

HEMIPLEGIA is a rare complication of pneumonia. It is most frequent in old age, but may also occur in previously healthy children and adults. It may arise in the course of, or in convalescence from, pneumonia. The symptoms and termination are the same as in hemiplegia due to embolism or hæmorrhage. It is not, as a rule, associated with any symptoms of encephalitis. The pathogeny in the great majority of cases is to be found in cerebral embolism, the origin of which is either in the lung or the heart.

Bernheim records a case in a man, aged 19, who had a severe attack of double pneumonia. The temperature fell on the eleventh day. Four days later left hemiplegia developed, and gradually diminished leaving some paresis of the lower limb with some exaggeration of the tendon jerks. J. D. ROLLESTON.

MENINGISM IN MUMPS. (**Méningisme ourlien.**) COLOMB and
(196) MARY-MERCIER. *Bull. et mém. Soc. méd Hôp. de Paris*, 1912, xxxiii., p. 240.

A CASE in a soldier in which the meningeal symptoms—coma, Kernig's sign and nuchal rigidity—preceded the parotid swelling by three days. The cerebro-spinal fluid was normal.

J. D. ROLLESTON.

REPORT OF A CASE OF SPECIFIC MENINGITIS TREATED BY
(197) **INTRA-SPINAL INJECTIONS OF ANTI-MENINGOCOCCIC SERUM.** W. B. THISTLE, *Canad. Pract. and Review*, March 1912, p. 150.

A CASE of meningococcic meningitis in a boy, following a blow behind the left ear by a swing. He was unconscious for two hours, but seven days later, as his progress was not satisfactory, he was sent into hospital. He was kept under observation for a fortnight, when the idea of a possible fracture was abandoned. A lumbar puncture at this stage gave a turbid fluid under slightly increased pressure, with a cell count of 4,000 per cm.m., and demonstrated the presence of an intracellular diplococcus. Two days later lumbar puncture was again performed and 15 c.c. of antimeningococcic serum injected. A second injection of 15 c.c. was given two days later. After three days his temperature fell to normal, and he made a good recovery. The author considers that the rule "to introduce the serum whenever the fluid removed is found to be turbid" is a good one, as the serum will do no harm and further examination may demonstrate the presence of the meningococcus.

A. NINIAN BRUCE.

CHRONIC HYPERTROPHIC SPINAL PACHYMENINGITIS. C. K.
(198) MILLS and E. M. WILLIAMS, *Journ. Nerv. and Ment. Dis.*, Dec. 1911, p. 705.

A GENERAL discussion of this subject is given, and the clinical and pathological features of a case are fully detailed. The patient was a woman, aged 45, whose symptoms had lasted for a little over a year; a peculiar feature of the case was the extraordinary variability in these. Unusual also was an atrophy and loss of power in the trunk muscles, and a very anomalous sensory disturbance. The diagnosis between the condition and tumour, syringomyelia, and amyotrophic lateral sclerosis is fully considered.

ERNEST JONES.

A RARE VARIETY OF INTRACRANIAL CYST. (Une varieté rare
(199) **de kyste intra-crânien.)** BOUCHAT **and** BOUGET, *Rev. de Méd.*, **Jan. 10, 1912, p. 61.**

THE authors report in detail a case in which there was an intracranial cyst about the size of a large walnut at the base of the brain extending forward in the interpeduncular space pressing on the corpus callosum, projecting between the hemispheres and directly involving the right optic nerve. The cyst was extracerebral, but entirely free of the dura mater, which was quite normal. It seemed formed at the expense of the pia-arachnoid with which it was connected by a small pedicle. The symptoms present during life were mainly those of a corpus callosum tumour with signs of direct pressure on the right optic nerve.

The classification and pathology of intracranial cysts, intracerebral and extra-cerebral, is discussed briefly, and attention drawn to the rarity of a pia-arachnoid cyst such as the one reported. A very similar case is abstracted from the literature and included in the paper. P. W. SAUNDERS.

SUBDURAL ABSCESS, THROMBOSIS OF THE LATERAL SINUS,
(200) **AND DIFFUSE OSTEOMYELITIS OF THE SKULL BONES TREATED WITH VACCINES: RECOVERY.** T. HARRISON BUTLER, *Brit. Med. Journ.*, March 16, 1912, p. 602.

THE patient was a man aged 25, who was admitted to hospital with violent earache and headache. There were no signs of cerebral irritation. The radical mastoid operation was performed. The antrum and subdural space contained about two drachms of thick pus. The dura was freely exposed and the middle ear curetted. The lateral sinus was not exposed. Improvement was only temporary. Antipneumococcic serum and polyvalent staphylococcic serum produced no obvious effect. The lateral sinus was then exposed for about one inch and was found to be full of pus. The jugular vein was not ligatured as the patient's condition was too precarious. A vaccine was made from the pus and was injected five days later in daily increasing doses. The temperature sank to normal and the mastoid wound healed rapidly. Nearly the whole of the squamous portion separated as a sequestrum, and was removed. The skull bones were necrosed all round and a probe could be passed down to the dura in every direction. The dura was exposed for about one square inch and was bathed in pus. The patient showed no signs of meningitis, his temperature was normal and he declared he was perfectly well. After one wound healed, another fresh swelling appeared, but after one full year's treatment in hospital he was discharged well and returned to work. The

organisms were the staphylococcus pyogenus albus and Hoffmann's bacillus, and the problem is to ascertain how far the vaccine treatment was responsible for the recovery. A. NINIAN BRUCE.

A TUMOUR OF THE CORPORA QUADRIGEMINA. HOPPE, *Journ.*
(201) *of Nerv. and Ment. Dis.*, Feb. 1912, p. 108.

HOPPE gives here a careful study of a case of tumour that occurred in a girl of 17. The chief symptoms were: diplopia, staggering gait, falling to the right, amaurosis, sudden attacks of muscular rigidity without loss of consciousness, all movements lost in the left eye except downwards, all movement lost in the right eye except inwards and downwards, static ataxia with retropulsion; there were no forced movements, no affection of hearing, of sensation, nor of the reflexes, and no paresis. The tumour, an inch in diameter, was situated on the right side and extended backwards in the pons and left lobe of the cerebellum. The literature of the subject is reviewed, and the question of focal diagnosis discussed at length. ERNEST JONES.

MALIGNANT CHORDOMA, INVOLVING BRAIN AND SPINAL
(202) **CORD.** JELLIFFE and LARKIN, *Journ. of Nerv. and Ment. Dis.*, Jan. 1912, p. 1.

THE authors give a detailed account of a case of this nature, which is the seventh fatal one to be recorded. The patient, a woman of 36, was well until eight months before her death; the first symptom was left sixth nerve palsy, which was soon followed by total ophthalmoplegia and signs of affection of the left trigeminus. Then amaurosis ensued, with somnolence, confusion and delirium, implication of other cranial nerves, paraplegia, and bloody discharge from the right nostril. The tumour found at the autopsy was remarkable in its size, was situated at the base of the brain, and was extra-dural; histologically it was found to be a chordoma. The authors append a very useful summary of previously reported cases. ERNEST JONES.

A CASE OF MULTIPLE EPENDYMOMATA OF THE BRAIN
(203) **AND SPINAL CORD, WITH TABETIC SYMPTOMS.**
GORDINIER and SAWYER, *Journ. Nerv. and Ment. Dis.*, Dec. 1911, p. 719.

A CASE record, with especially full pathological description, of a diffuse new growth derived from the ependymal lining of the

ventricular spaces of the brain. There was a widespread affection of the frontal lobes, with considerable necrosis of both the tumour and the surrounding brain tissue, multiple nodules of the crura and pons, and implication of the posterior nerve roots and dorsal aspect of the spinal cord throughout its whole length. The symptoms strikingly resembled those of tabes.

ERNEST JONES.

TUMOUR INVOLVING THE BASE AND SUBSTANCE OF THE
(204) **LEFT TEMPORAL LOBE.** DERCUM, *Journ. of Nerv. and Ment. Dis.*, Jan. 1912, p. 17.

DERCUM briefly reports a case of this nature. Aphasic symptoms were noticed five weeks before death, and included paraphasia, sensory aphasia, incomplete alexia, and agraphia. Dercum explains the agraphia by means of Von Monakow's diaschisis hypothesis.

ERNEST JONES.

OPERATIVE RESULTS IN CASES OF BRAIN TUMOUR.
(205) **(Meine Operationsresultate bei Hirntumoren.)** F. VON EISELSBERG, *Wien. klin. Wchnschr.*, Nr. 1, Jan. 1912, p. 17.

VON EISELSBERG gives here an account of 100 cases of operations for intra-cranial tumour. Of these, 43 were for cerebral tumours, in 32 of which the tumour was found, in 11 it could not be detected; 22 operations were for cerebellar tumour, in only half of which the tumour could be found; 12 operations were for tumour of the cerebello-pontine angle, 13 for pituitary tumour, and 10 were palliative.

Of the cerebral tumours, 24 were in the region of the central convolution, 5 in the frontal region, and 3 in the angular gyrus. Of these 32 cases in which the tumour was found, 9 died shortly after the operation; the remainder lived for variable periods up to five years, and in only 1 could complete recovery be said to have taken place.

Of the 11 cases where cerebellar tumours were found, death followed immediately after the operation in 5. In 2 cases of successful removal of tuberculous tumours, death followed thirty days and four months respectively from tuberculous meningitis. One case of a cerebellar cyst is still well two years later.

Of 12 cases of tumours of the eighth nerve in the cerebello-pontine angle, 4 survived the operation for from one to two and a half years, although only 1 was able to return to work. These tumours are usually simple in nature, and should be operated upon early before optic atrophy has developed. It is of the

greatest importance that the cerebellum be not injured in the operation. Out of 34 cases in which the cerebellum was exposed, 22 died from the immediate results of the operation.

Leaving the pituitary and palliative operations out of consideration, 77 cases remain. Of these, 48 died, 32 directly after the operation, and 16 later from other causes. The 25 remaining cases where the operation was successful, consisted of 12 cerebral where the tumour was removed, and 6 cerebral and 2 cerebellar where it was not removed, 4 tumours of the eighth nerve at the cerebello-pontine angle, and 1 cerebellar case.

A description of the technique is given, but does not contain any new points. A. NINIAN BRUCE.

TUMOURS OF THE EIGHTH NERVE, A NEW GROUP OF
(206) **TUMOURS RECOGNISABLE BY THE X-RAYS. (Die Akustikustumoren, eine neue Gruppe radiographischdarstellbarer Hirntumoren.)** FOLKE HENSCHEN, *Fortsch. a. d. Geb. d. Röntgenstrahlen*, Bd. xviii., H. 3, Feb. 20, 1912, S. 207.

BRAIN tumours are difficult to demonstrate by means of the X-rays, unless the tumour has undergone calcification (*v. Review*, 1912, p. 143), or corresponding changes in the skull have taken place, *e.g.*, in the sella turcica in pituitary tumours. Mere differences in density, when present, are rarely reliable.

Tumours of the eighth nerve in the cerebello-pontine angle by their growth and pressure widen the meatus, and produce changes in the bone which may be shown by means of the X-rays. If a tumour of the cerebello-pontine angle be suspected, a radiograph should be taken of the internal auditory meatus of both sides, and a comparison made, as by this means it may be possible to obtain most valuable information in regard to the position and nature of the tumour.

A case of this kind is described, accompanied by two X-ray photographs showing the above condition.

A. NINIAN BRUCE.

SOLITARY TUBERCULOMA OF THE CEREBELLUM. (Tubercule
(207) **solitaire du cervelet.)** M. GARNIER and J. THIERS, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 145.

A WOMAN, aged 44, suffering from pulmonary tuberculosis, presented the following nervous symptoms: headache, nuchal rigidity, weakness of muscular power in the left side, exaggeration of the left tendon reflexes, diminution of left cutaneous sensibility, dilatation and immobility of the left pupil, marked tendency to fall backwards and to the left, bilateral nystagmus, conjugate deviation

of the head and eyes to the right, extensor plantar response and the fan sign. The cerebro-spinal fluid was normal. The necropsy showed a large tuberculous mass in the left lobe of the cerebellum.

J. D. ROLLESTON.

CEREBELLAR TUMOUR CAUSING NO SYMPTOMS TILL
(208) **SHORTLY BEFORE DEATH.** A. E. CRABBE, *Practitioner*, March 1912, p. 475.

THE case described is that of a woman, aged 29, who had been under observation for one year for occasional headaches and sickness, but who exhibited no other symptoms of cerebellar tumour until about six weeks before death, when she suddenly had an attack of giddiness, and was found to have diplopia, double optic neuritis, lateral nystagmus and slight loss of memory, but no motor or sensory changes, no Rombergism, and no alteration in the reflexes. Cerebellar gait, severe headaches and slight tenderness over the left occipital region rapidly developed. An occipital decompression was performed, and the occipital bone was found to be so thin as to be almost transparent.

At the autopsy a tuberculous tumour was found on the upper aspect of the right cerebellar hemisphere. It was encapsuled and did not invade the cerebellar substance. It had forced the cerebellum and medulla oblongata downward into the spinal canal, part of the former reaching as low as the level of the lamina of the second cervical vertebra. There was a marked pressure ring at the level of the foramen magnum passing round the medulla and right cerebellar hemisphere. The ventricles were dilated and the convolutions flattened. A. NINIAN BRUCE.

PRELIMINARY NOTE ON A NEW SYMPTOM COMPLEX DUE
(209) **TO LESION OF THE CEREBELLUM AND CEREBRO-RUBRO-THALAMIC SYSTEM, THE MAIN SYMPTOMS BEING ATAXIA OF THE UPPER AND LOWER EXTREMITIES OF ONE SIDE, AND ON THE OTHER SIDE DEAFNESS, PARALYSIS OF EMOTIONAL EXPRESSION IN THE FACE, AND LOSS OF THE SENSES OF PAIN, HEAT, AND COLD OVER THE ENTIRE HALF OF THE BODY.** C. K. MILLS, *Journ. of Nerv. and Ment. Dis.*, Feb. 1912, p. 73.

THE subject and contents of this communication, two pages long, are sufficiently well indicated in the title. A short account of the clinical and pathological features of a case, which has previously been twice published, is given, and the promise made of a more detailed publication at next year's meeting of the American Neurological Association. ERNEST JONES.

THE SENSORY TRACT IN RELATION TO THE INNER CAPSULE.

(210) SPILLER and CAMP, *Journ. of Nerv. and Ment. Dis.*, Feb. 1912, p. 92.

AFTER a detailed discussion of the literature of the subject, in which particularly Marie and Guillain's views are controverted, the authors describe a case that would seem to prove that hemi-anæsthesia may result, not only from an affection of the lateral nucleus of the optic thalamus, but also from one implicating the posterior part of the internal capsule and lenticular nucleus.

ERNEST JONES.

ON THE "DYNAMIC" ELEMENT IN MOTOR APHASIA. (De l'élément dynamique dans l'aphasie motrice.)

(211) BERNHEIM, *Rev. de Méd.*, Feb. 10, 1912, p. 91.

THIS paper is more or less in the nature of an addendum to one on the same subject by the author in the *Revue de Médicine*, 1908. He holds to the view that the existence of special speech centres is not sufficiently proved, and, in regard to the question of the localisation of cerebral function generally, he would lay emphasis on the fact that it is necessary always to bear in mind, in any given case, not only the actual extent or site of the lesion, but also the accompanying shock, and the dynamic or functional disturbances that are grafted on to it even in other parts of the brain.

In the present paper he publishes the results of the post-mortem examination in a case of right-sided hemiplegia in which, besides other lesions, there was found an extensive area of softening involving Broca's area, the island of Reil, and the corpus striatum of the left side and the anterior part of the internal capsule up to the optic thalamus. Notwithstanding this lesion, the patient, although completely aphasic at first, and able to say only "thank you" in an automatic way, had recovered gradually the ability to sing the National Anthem, to say the Lord's Prayer, to name the days of the week in order, or the months of the year, and after about two years had obtained some considerable spontaneous speech.

The author contends that the recovery of spontaneous speech in this case shows that Broca's area is not the speech centre, nor the lenticular nucleus the centre for speech co-ordination. The rôle of the right side of the brain in the generally accepted theory is not discussed, nor the existence of a subcortical aphasia as distinct from pure aphasia.

Apart from the interest of the case as illustrating the recovery of speech in a left-sided lesion, it is noteworthy from the fact that, notwithstanding this recovery of speech, there was a progressive mental deterioration ending in dementia. P. W. SAUNDERS.

THE DIFFERENTIAL DIAGNOSIS OF CONDITIONS CAUSING
(212) **INCREASED INTRACRANIAL PRESSURE.** CARL D. CAMP, *Cleveland Med. Journ.*, Vol. xi., No. 1, Jan. 1912, p. 1.

A SHORT account of some of the conditions which may cause increase in the intracranial pressure is given here. Traumatism to the skull, unaccompanied by fracture, may do so, apparently due to a simple transudation of serum. This may persist for months and may explain the continued headache, epileptic attacks, &c., and even cause choked disc, which may disappear without treatment, or may lead to optic atrophy or to a traumatic late apoplexy. Cerebral emboli may be accompanied by a transient increase in intracranial pressure due to the œdema which occurs round the softened area. Thrombosis of cerebral arteries is not accompanied by symptoms of increase of intracranial pressure, although these symptoms may be marked in thrombosis of the large sinuses. The signs of increased intracranial pressure that are sometimes present in uræmia may be due to high blood pressure or to serous transudation into the meninges. Chlorosis and myxœdema may also give rise to symptoms of increased pressure.

The pathological conditions arising within the cranial cavity that give rise to an increased intracranial pressure are chiefly: internal hydrocephalus, meningitis, encephalitis, cerebritis, brain abscess, and brain tumour. These are briefly discussed.

A. NINIAN BRUCE.

A CASE OF PSEUDO- OR DIFFUSE SCLEROSIS. DILLER and
(213) WRIGHT, *Journ. of Nerv. and Ment. Dis.*, Dec. 1911, p. 736.

AFTER giving a general account of Westphal's syndrome, the authors relate the clinical history of a case which they consider is of this nature. The patient, a boy of 13, had been suffering from a gradually progressive mental deterioration for three or four years. Other symptoms were general, muscular weakness, speech changes, tremor of the arms, face and tongue, with signs of pyramidal affection; the cerebro-spinal fluid was normal (no mention is made of any Wassermann test). ERNEST JONES.

EPIDEMIC POLIOMYELITIS IN WESTMORLAND. Summer and
(214) **autumn, 1911.** W. E. HENDERSON, *Public Health*, Vol. xxv., No. 6, March 1912, p. 218.

THE total number of cases here recorded is 49, 36 males and 13 females. Eight cases proved fatal, *i.e.*, 16·3 per cent. The first case occurred on 11th July 1911, and the last on 14th October 1911. Two cases occurred in the same house in four instances

and two scholars were affected in the same school in two instances. The most striking feature in the clinical picture was pain on passive movement of the affected limbs. A. NINIAN BRUCE.

ACUTE ANTERIOR POLIOMYELITIS IN SOUTH-WEST NORFOLK.
(215) G. F. CROSS, *Brit. Med. Journ.*, March 30, 1912, p. 721.

THIS outbreak occurred at the end of September and comprised ten cases, all within a radius of six miles of Downham Market. Two cases proved fatal. Four lived in good farmhouses with well-to-do parents, three in good cottages, and there were only two houses in which the sanitary conditions were unsatisfactory. Eight of the cases were in the fen, some being a good distance from the high road and therefore not subject to any unusual amount of dust. With the exception of two cases there were other children in all the houses, but in only one house was there more than one case. Flies and other insects were abundant, and in three of the houses there were undoubtedly a number of fleas.
A. NINIAN BRUCE.

ON ACUTE POLIOMYELITIS (Heine-Medin's Disease). R. M.
(216) HEWITT, *Brit. Med. Journ.*, March 30, 1912, p. 719.

Two cases are described here. The first was a girl, aged 12. Both arms and both legs were affected. She made satisfactory progress, however, until one day, while having an electric bath, she gave a scream and had a typical epileptic fit lasting about four to five minutes, recovering in the usual manner. There was no recurrence, and the improvement has continued.

The second case was a girl of 8. She complained of not feeling well and was put to bed. After four days, on getting her out of bed, a distinct ataxic gait was noticed, especially on the left leg. This ataxia gradually increased and the temperature became high and irregular, varying from 99° to 104°, often in less than two hours. A few days later a punctuate erythematous eruption appeared, and the heart began to dilate, but she ultimately had a good convalescence, although the ataxia has not yet passed off.
A. NINIAN BRUCE.

A CUTANEOUS REACTION IN SYPHILIS. HIDAYO NOGUCHI,
(217) *Journ. of Exper. Med.*, Dec. 1911, p. 557.

THE author has succeeded in cultivating the spirochæte pallida under strictly anærobic conditions. The culture medium is water serum fluid or serum agar, and in each case a piece of fresh rabbit organ

tissue is added. Both a fluid and solid culture were used in the manufacture of "Luetin," and the resulting emulsion was subjected to a temperature of 60° C. for one hour; 0·05 per cent. carbolic acid was added as a preservative. As a control substance, emulsions of media made up similarly with carbolic acid were used throughout the series of experiments. The site selected was the arm in man and the back in rabbits, the injection was an intradermic one, and 0·05 c.c. of the respective emulsions were used in each instance. In a negative reaction there was a slight erythema at the site of inoculation, which appeared in twenty-four hours and had faded by forty-eight hours. A positive reaction consisted of three varieties: (1) Indurated reddish papules appeared in twenty-four to forty-eight hours which increased in dimension and in intensity of induration up to four days, then gradually faded. (2) A pustular variety commencing as in (1), but in four days or so the papules became pustular. This special type of reaction was found almost constantly in tertiary syphilis, also in secondary and hereditary syphilis which had been treated with salvarsan. (3) A torpid variety, a rare type, where the infection fades and might be considered negative, but in about four days the condition lights up again and becomes pustular. The constitutional symptoms are as a rule very mild; a slight rise of temperature lasting a day is usual in positive reactions. Noguchi found a positive reaction in all rabbits who had received repeated inoculations into the testicle of living or killed spirochæte. On the other hand a negative result was obtained in rabbits suffering from active syphilitic orchitis, in rabbits cured with salvarsan four months previously, and also in normal rabbits. In all 400 cases in man were examined, 177 syphilitics, 77 parasyphilitics, and 146 controls, of whom 46 were normal young people, and the remainder were individuals suffering from various physical conditions. All control cases gave a negative reaction. In primary and secondary syphilis the reaction was infrequent and if present of mild intensity. However, in some cases which had been and were being treated, and which presented no obvious symptoms of syphilis, there action was extremely severe, and this was specially the case where salvarsan was the drug used. In cases of tertiary, latent, and hereditary syphilis the skin reaction was the most constantly present and very intense, 100 per cent. positive in active tertiary syphilis, 94 per cent. positive in latent syphilis, and 96 per cent. positive in hereditary syphilis. In contradistinction to primary and secondary manifestation, those are the conditions in which the Wassermann reaction is least often positive, and thus in later syphilitic and hereditary manifestations the skin reaction may prove of great practical value. In parasyphilitic diseases the reaction was inconstant, in 72 cases of general paresis examined only 45 gave a positive reaction, and 3

out of 5 tabetics were also positive. The result of the "Luetic" reaction in cerebral syphilis was even less constant than the Wassermann in these conditions. WINIFRED MUIRHEAD.

SYPHILIS IN RELATION TO ANEURYSM OF THE AORTA.
(218) **(De la syphilis dans ses rapports avec les anévrismes de l'aorte.)** A. DELSOUILLER, *Thèses de Paris*, 1911-12, No. 88.

Of 35 cases of aortic aneurysm in Vaquez' service 34 were syphilitic. In 33 Wassermann's reaction was positive, and in the remaining two one showed clinical evidence of syphilis by the presence of the Babinski-Vaquez syndrome, *i.e.*, Argyll Robertson pupil and aortic lesion. J. D. ROLLESTON.

SYPHILOPHOBIA. (Syphilidophobia.) O. SCHEUER, *Dermat. Ztschr.*,
(219) 1912, xix., p. 46.

SYPHILOPHOBIA is as old as syphilis itself; it was remarkably intense on the first appearance of the disease in Europe at the end of the fifteenth century. The term was coined by Ricord who called it the worst form of hypochondria. The condition may occur both in the syphilitic and in the non-syphilitic who have been misled by an erroneous diagnosis. It bears no relation to the severity of the attack of syphilis. The individual disposition is of importance (*cf. Review*, 1908, vi., p. 442, and 1909, vii., p. 678). J. D. ROLLESTON.

THE INFLUENCE OF ARSENOBENZOL ON THE LEUCOCYTIC
(220) **VARIATIONS IN THE BLOOD OF PATIENTS SUFFERING FROM NERVOUS AND MENTAL DISEASES. (Contributo allo studio dell' influenza dell' arsenobenzolo sulle variazioni leucocitarie nel sangue di ammalati affetti da forme nervose e mentali).** A MORETTI, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 1, Feb. 8, 1912.

THE results obtained by the author from blood counts on patients treated with arsenobenzol by muscular and intravenous injections are so discordant that he admits himself that no deduction as to the action of arsenobenzol on leucocytosis can be drawn from his observations. F. GOLLA.

SIXTEEN MONTHS' EXPERIENCE OF SALVARSAN. G. G. S.
(221) STOPFORD-TAYLOR and R. W. MACKENNA, *Brit. Med. Journ.*, March 30, 1912, p. 713.

THE authors have treated altogether 92 patients, 41 being in the primary and secondary stages and 45 in the tertiary. There were also 2 cases of general paralysis, 2 of locomotor ataxia, 1 of sclerosis

of the cord following transverse myelitis, and 1 of congenital syphilis.

They conclude that salvarsan is a remedy that is efficacious at every stage of syphilis. It can bring about healing in lesions that have resisted mercury and iodides. The ideal treatment is a combination of salvarsan and mercurial treatment, beginning with an intravenous injection of salvarsan and followed by vigorous mercurial treatment, and, if necessary, repeating the salvarsan injection. Treatment should be controlled throughout by the Wassermann reaction. The intravenous method is better than the intramuscular, and if properly administered to suitable cases is followed by no danger. A. NINIAN BRUCE.

RESULTS OF THE TREATMENT OF SYPHILIS WITH SAL-
(222) **VARSAN AT THE ROYAL NAVAL HOSPITAL, HASLAR.** T. B. SHAW, *Brit. Med. Journ.*, April 6, 1912, p. 777.

PRIMARY syphilis is treated by one injection of salvarsan, followed eight to twelve days later by a second. No further treatment unless the Wassermann reaction becomes positive. Secondary syphilis is treated in the same way, only mercury and iodides are recommended unless the Wassermann reaction can be tested once a month. Late secondary and tertiary syphilis require one or two injections and further treatment by mercury and iodide. Salvarsan is not recommended in latent syphilis, unless the case be early, or previous treatment slight. A. NINIAN BRUCE.

A CASE OF LATE SYPHILITIC GLOSSITIS TREATED BY
(223) **SALVARSAN (Ehrlich-Hata).** Sir MALCOLM MORRIS, *Brit. Med. Journ.*, March 30, 1912, p. 712.

THE patient had a chancre in 1902 with a secondary eruption on the face. The tongue began to swell and become fissured in 1904, and grew gradually worse during the next seven years. The Wassermann reaction was positive. He was given 0·6 g. of salvarsan intravenously, and two months later the fissures had entirely healed and the tongue returned to its normal size. This was followed up by small doses of mercury.

The author, among other points, emphasises the fact that salvarsan never causes damage to the optic nerve.

A. NINIAN BRUCE.

PERIPHERAL FACIAL DIPLEGIA. (Diplegia facciale periferica.)
(224) E. A. SAGRINI, *Riv. ital. di Neurop., Psichiatr. ed Electroterap.*, 1912, v., p. 53.

THE patient was a man, aged 40, suffering from secondary syphilis and frequently exposed to draughts. All the branches of both

facial nerves were affected almost simultaneously, but the paralysis was most marked and persistent in the left. Rapid recovery followed antisyphilitic and electrical treatment.

J. D. ROLLESTON.

DOUBLE OPTIC ATROPHY FOLLOWING MUMPS. (Double atrophie optique post-ourlienne.) JACQUEAU, *Rév. de méd.*, 1911, "Jubilé du Prof. Lépine," p. 368.

(225)

THE same case has been previously recorded by the writer (*v. Review*, 1910, viii., p. 550). J. D. ROLLESTON.

A CONTRIBUTION TO LOCALISED TUBERCULOSIS OF THE OPTIC PAPILLA. (Ein Beitrag zur Solitärtuberkulose des Sehnervenkopfes.) KOMOTO, *Klin. Monatsbl. f. Augenheilk.*, Jahr. L., Jan. 1912, S. 82.

(226)

THE patient, a delicate girl of 10 years with a good family history, was attacked by fever and headache with reddening and photophobia of the left eye. No other lesion was found, and a tuberculin test produced a slight rise of temperature. As the eye was blind it was removed, when total detachment of the retina was found with a grey tumour mass in the region of the papilla. The tumour, which was partly necrotic, consisted mainly of lymphocytes and epithelioid cells, with fairly numerous giant cells, and extended back to the lamina cribrosa. The remainder of the eye showed more or less diffuse cell infiltration without characteristic features.

H. M. TRAQUAIR.

ON PAPILLŒDEMA FOLLOWING ON PERFORATING WOUNDS OF THE EYEBALL. A Further Contribution to the Theory of Papillœdema. CARL BEHR, *Klin. Monatsbl. f. Augenheilk.*, Jahr. L., Jan. 1912, S. 56.

(227)

THE scope of this paper may perhaps best be appreciated by stating the author's conclusions to begin with. Papillœdema (Stauungspapille) may be divided into three groups.

1. Cases due to compression of the nerve and its lymphatics by intracranial or intraorbital conditions.

2. Those due to retention and accumulation of lymph in the papilla in consequence of persistent marked hypotension of the eye as in perforating wounds or chronic affections of the anterior division of the eye.

3. Those due to undue outflow of lymph from functionally altered blood vessels in general diseases, such as anæmia and polycythæmia.

The first two groups include active forms of œdema, the last passive. The present paper deals with the second of these groups, which is called "Retention Papillœdema." Details are given of six cases which were microscopically examined. One was a case of keratomalacia in an infant, the others were injuries. In five there were persistent low tension and marked papillœdema. In the sixth the eyeball was excised at an earlier period, and the papillœdema was less marked but definitely present. In all the cases signs of inflammation were absent, and a characteristic feature was the restriction of the œdema to the intraocular part of the nerve on the peripheral side of the lamina cribrosa.

Notes of four similar cases are given in which the papillœdema was observed ophthalmoscopically only.

Two explanations are possible: The toxic, depending on the products of inflammation, and the mechanical, due to the persistent reduced tension. As far as concerns his own cases the author favours the latter theory.

His view is that the lymph stream in the retina and papilla depends on the relationship between the peripheral pressure—that in the eye—and the aspiratory power of the lymph stream in the central parts of the neuro-optical apparatus. Small variations in the one may be compensated for by the other, as when the intraocular tension is slightly reduced the aspiratory power of the lymph stream is sufficient to draw off the fluid. If, however, the intraocular tension be markedly reduced for a long time, the fluid removing mechanism through aspiration is insufficient, and retention of lymph in the papilla results.

All three groups result from a purely mechanical cause. The second two have the common feature that the passage to the cranial cavity remains free, and thus a balance of pressures is attained, a certain amount of circulation goes on, and the deleterious effects of severe lymph-stasis are avoided. In the first group, however, in addition to the lymph-stasis, there is injurious compression of the tissue, producing ultimately degenerative and inflammatory changes which in the other two groups remain absent or minimal, even in the presence of long-continued papillœdema. It is also to be noted that the scleral part of the lamina cribrosa is pushed forwards in the first group only, an observatio n confirmatory of the author's views.

On this basis the author definitely distinguishes between Papillœdema (Stauungspapille), always mechanically produced, and Optic Neuritis, always of toxic-inflammatory origin, and while agreeing with Uhthoff that a typical papillœdema with an elevation of at least two dioptres practically excludes a simple neuritis, he believes at the same time that a lesser prominence of the nervehead should not be regarded as excluding a papillœdema.

As a diagnostic point alteration in dark-adaptation is of value, as the author has never found any considerable disturbance in this function, even when the acuity and field of vision were greatly reduced, in a pure papillœdema, while frequently observing it in neuritis.

The paper is an interesting and suggestive contribution to our knowledge of this very difficult subject.

H. M. TRAQUAIR.

A CASE OF INCONGRUOUS HOMONYMOUS HEMIANOPSIA.

(228) OTTO SCHIRMER, *Arch. of Ophthalmol.*, Vol. xli., No. 2, March 1912, p. 136.

AN account of a case of a man aged 20, who suddenly one night developed an absolutely complete homonymous hemianopsia of the left side, probably the result of a small hæmorrhage on the right side behind the chasima, due to a congenital weakness in the walls of a vessel or possibly to an aneurysm of a smaller vessel.

The crossed fibres—passing from the right tract to the nasal half of the left retina—recovered rapidly and completely, while recovery was slow and incomplete in the non-crossed fibres of the same tract—passing to the temporal half of the right retina.

The non-crossed fibres occupy the upper part of the optic tract for a few millimetres behind the chiasma and form a closed bundle, while the crossed fibres occupy mainly the lower part of the chiasma. Just behind this the fibres of the two tracts become intimately intermingled. The above symptoms would be produced by a small lesion situated in the non-crossed fibres immediately behind the chiasma with more or less destruction of these fibres, and the paralysis of the crossed fibres must be due to mechanical pressure of the effused blood, or to collateral œdema.

A. NINIAN BRUCE.

NERVOUS DISTURBANCES FOLLOWING CINEMATOGRAPH EXHIBITIONS. (Turbe nervose consecutive alle rappresentazioni cinematografiche.)

(229) L. LOJACONO, *Riv. ital. di Neuropatol., Psichiatr. ed Electroterap.*, 1912, v., p. 14.

A RECORD of two cases. The first was in a neurasthenic young woman, in whom the mere recollections of the pictures produced a state of anxiety similar to that occurring in phobias.

The second was in an alcoholic man, aged 60, in whom the exhibitions caused insomnia and visual hallucinations.

J. D. ROLLESTON.

THE RELATION OF CHOREA TO RHEUMATISM: An Analysis of
(230) **300 Cases.** MARK S. FRASER, *Practitioner*, March 1912, p. 461.

ALL the cases included in these statistics are examples of true Sydenham's chorea, and constitute the total admissions for this disease to Paddington Green Children's Hospital for the period 1890 to 1910. Definite evidence of rheumatism before an attack of chorea was found in 150 cases, and 24 showed definite evidence of rheumatism while under observation in hospital. 216 cases had either a personal or strong family history of rheumatism. The author concludes that the majority of cases of chorea are closely associated with rheumatism, that probably chorea is a cerebral manifestation of rheumatism, and that possibly all cases of true chorea are rheumatic in origin. A. NINIAN BRUCE.

LEONTIASIS OSSEA—ACROMEGALY AND SEXUAL INFANT-
(231) **ILISM.** HOPPE, *Journ. of Nerv. and Ment. Dis.*, Feb. 1912, p. 77.

HOPPE reports two cases of leontiasis ossea. In one of them, in a man of 21, there was sexual infantilism; the pituitary body was smaller than normal, but otherwise apparently healthy; in the other case, a girl of 15, there was found after death a tumour of the pituitary. A diffuse discussion is given of the recent work on the pituitary body, and the suggestion defended that leontiasis ossea may be a form of acromegaly. ERNEST JONES.

ACROMEGALY IN PREGNANCY PASSING OFF IN THE
(232) **PUERPERIUM.** MAREK, *Zentralbt. f. Gyn.*, Nr. 47, 1911.

MAREK records the case of a primigravida, æt. 26. Her previous history was uneventful, her menstrual history normal. She last menstruated on 16th August 1910. In September she consulted a Vienna gynecologist, who gave her a guarded opinion as to her being pregnant, but apparently noticed nothing further wrong with her. The pregnancy ran a perfectly normal course until the eighth month, when she noticed her gloves and boots becoming too tight for her. Her rings became painful, and had to be cut off with a file. At the same time she began to suffer from pains in the extremities, dulness and somnolence, great thirst, hoarseness, coryza, polyuria, and glycosuria. There was no headache nor interference with vision.

Her friends were struck with the rapid change in her appearance. The skin of the face became thickened, coarsened and darkened; the lips and nose thickened. The lower jaw projected so that the lower teeth projected in front of the upper. The skin of the hands and feet and legs was thickened and firm. There was no goitre nor exophthalmos. The urine contained sugar, but

no albumen. The hoarseness ultimately became associated with angina.

Marek diagnosed "hyperpituitarism," and regarding the glycosuria as a symptom merely, did not treat it further than by restricting the carbohydrates in the diet.

Labour ensued on 8th May, and she was delivered by forceps of a healthy boy, whom she was able to nurse. On the first day of the puerperium the temperature was 101, and the pulse 128, but it had been quick before labour. Within a few days it fell to 88. The thirst and somnolence diminished, the features became thinner, and the skin softer. A month later the jaws met accurately, the lower teeth just behind the upper. In July she could wear her rings in comfort, and the sugar had disappeared from the urine.

Marek is of opinion that there is a normal hyperpituitarism in pregnancy, partly owing to the withdrawal of the antagonising secretions of the ovary. The glycosuria was partly due to the increased quantity of suprarenal secretion in the blood in pregnancy. R. W. JOHNSTONE.

CHEMICAL STUDIES ON INTESTINAL INFANTILISM. 1.
(233) **Endogenous Metabolism: Kreatinin, Kreatin, and Uric acid.** F. H. M'CRUDDEN. **2. The Relation of Endogenous to Exogenous Metabolism: The Nitrogen and Sulphur distribution, and calorimetric experiments.** F. H. M'CRUDDEN and H. L. FALES, *Journ. Exper. Med.*, Vol. xv., No. 2, Feb. 1912, pp. 107 and 113.

THE urine of three cases of intestinal infantilism was examined as well as the respiratory coefficient taken, but the results show no great variation from the normal. R. A. KRAUSE.

THE PRINCIPLES OF TREATMENT IN EXOPHTHALMIC
(234) **GOITRE.** GEORGE R. MURRAY, *Lancet*, Feb. 24, 1912, p. 489.

GENERAL treatment should consist of mental and bodily rest combined with a liberal diet, of which milk forms a large part. Excess of proteid food should be avoided. Sera, &c., supposed to be, but not really, specific in their action on the overactive thyroid, may do more harm than good. Arsenic and belladonna are of proved utility. X-rays may be of value in diminishing the gland, and faradism is often useful as a mode of treatment. Purely symptomatic measures are often necessary.

The author's experience of surgical treatment is comparatively small. Of ten cases, six were operated on to cure or relieve the disease, and three died. In the other four the operation was primarily for the relief of pain or dyspnœa. Of the seven sur-

vivors two are cured, four are improved, and one has just recovered from the operation.

He advises operation in all cases where there is distinct stridor from compression of the trachea or persistent pain in the goitre. In mild cases it is unnecessary; in very severe cases too dangerous; but in moderate cases in which no adequate improvement follows on medical treatment fully carried out for twelve months, a partial thyroidectomy or ligature of the superior thyroid arteries may be advised. While admitting that the grave dangers which formerly made physicians unwilling to advise operation have now been considerably reduced, he emphasises his opinion that the prognosis usually given in text-books is too pessimistic, as a considerable number of cases do either completely or partially recover without operation. J. H. HARVEY PIRIE.

PARTIAL THYROIDECTOMY UNDER LOCAL ANÆSTHESIA, WITH SPECIAL REFERENCE TO EXOPHTHALMIC GOITRE. (235) T. P. DUNHILL, *Lancet*, Feb. 17, 1912, p. 422.

THE author writes from his own experience—no small one, 230 cases operated on, with four deaths—as an enthusiastic supporter of surgical treatment in exophthalmic goitre.

As a general rule he does not operate until the patient has had at least three months' efficient medical treatment; if there are still pronounced symptoms he believes in operation before the case has gone on to organic degeneration and the patient is more or less of a wreck. Almost all of his operations have been done under local anæsthesia. He believes in the removal of a lobe and a half rather than of one lobe alone, provided that it is done rapidly and without crushing. Removal of one lobe only is apt to lead to reflex dilatation in the vessels of the remaining lobe, increased activity, and consequent poisoning; whereas, if the second lobe is cut across, the clean-cut surface allows free escape for the thyroid secretion and lymph, which is led to the exterior by an efficient drainage-tube. The paper is certainly one which should be consulted for fuller details by all interested in the treatment of exophthalmic goitre. J. H. HARVEY PIRIE.

AN ATYPICAL CASE OF HYPERTHYROIDISM: Report of a Case of Hyperthyroidism complicated by Chronic Appendicitis, Retroversion of the Uterus, and a bilateral Cervical Tear. (236) J. SHELTON HORSLEY, *N.Y. Med. Journ.*, Feb. 10, 1912, p. 267.

THE patient was a woman, aged 38, married, who presented symptoms of hyperthyroidism at each menstrual period, the condition passing off in four or five days. As fixation of the

uterus and repair of the cervical tear was not followed by any improvement, removal of the enlarged right lobe and isthmus of the thyroid was performed. The operation was successful, and no return of the symptoms has occurred since. A. NINIAN BRUCE.

THE VACCINE TREATMENT OF SIMPLE GOITRE. R. M'CARRI-
(237) SON, *Lancet*, Feb. 10, 1912, p. 357.

CAPTAIN M'CARRISON having previously shown endemic goitre at Gilgit to be due to an infective agent in the alimentary tract, now reports very successful results in vaccine treatment for this disease. Four strains of vaccine have been used—one, the most successful, a composite vaccine prepared from the fæces of goitrous subjects; another, a coliform bacillus, which was the most prominent organism in the composite vaccine; thirdly, a common staphylococcal vaccine; fourthly, a vaccine of a spore-bearing organism isolated from the fæces of a horse with goitre. The results are very striking, but the method is only of value in cases of recent parenchymatous goitre.

The fact that improvement followed on the use of vaccines of several organisms, none of which probably have any direct influence in the production of goitre, suggests that they merely cause the disappearance of the goitre by relieving the thyroid of part of its normal work, thus enabling it, without continuing in a state of hypertrophy, to destroy the specific toxin of goitre. The writer believes that one of the chief functions of the thyroid is to protect the body from the many toxic substances which find their way into the blood stream from the alimentary tract; it enlarges when there is a definite stimulus from some specific excess of toxin, the enlargement being, not an evidence of derangement of the organ's function, but of its resistive efforts.

J. H. HARVEY PIRIE.

INVESTIGATIONS INTO THE PRESENCE OF "VAGO-TONUS
(238) **AND SYMPATHETIC-TONUS." (Untersuchungen über das Vorkommen von "Vagotonus und Sympathikotonus.")** K. PETRÉN und I. VHORLING, *Ztschr. f. klin. Med.*, Bd. 73, H. 1 u. 2.

IN this communication the German nomenclature is apt to be somewhat confusing. English authors, following Langley, use the term "autonomic nervous system" to include the sympathetic and those nerves, of which the vagus is the best known example, which act apart from the interference of the will; the present authors confine the term to the latter class of nerves. The stomach is supplied both by the vagus and the sympathetic, and for this reason gastric cases were chosen for investigation. Stimu-

lation of the vagus increases gastric acidity, stimulation of the sympathetic diminishes it. The drugs used were adrenalin on the one hand, pilocarpine and atropine on the other. A positive pilocarpine reaction was said to indicate "vago-tonus," a positive adrenalin reaction indicated "sympathetic-tonus." The dose of adrenalin was ·001 grm. for men, ·00075 grm. for women.

An hour before the administration of adrenalin 100 g. of grape sugar were given, and if sugar appeared in the urine the reaction was regarded as positive. A similar dose of atropine was used. In the case of pilocarpine ·01 grm. was given to men, ·0075 grm. to women, the reaction being the production of sweat.

In a series of 18 cases of gastric ulcer there was a pilocarpine reaction in 8, an adrenalin reaction in 1, a positive reaction to both drugs in 5, and a negative reaction to both in 4. From these results the authors conclude that a vago-tonus is more common in this condition than a sympathetic-tonus, for they commence with the assumption that pilocarpine acts on the autonomic system, adrenalin on the sympathetic system.

In a series of 16 cases other than ulcer, mostly neurasthenic in type, the results were as follows: a reaction to pilocarpine alone in 6, a reaction to both pilocarpine and adrenalin in 8, a negative reaction to both in 2. Thus, here again vago-tonus was commoner than sympathetic-tonus. Eppinger and Hess, who are frequently quoted throughout, state that atropine acts better in cases with a pilocarpine reaction than in those with an adrenalin reaction, but the present authors found the reverse to be the case. They conclude that the above symptoms are due to a condition of increased excitability of the autonomic or sympathetic systems.

W. BOYD.

PSYCHIATRY.

DIFFERENTIAL DIAGNOSIS BETWEEN MANIC-DEPRESSIVE PSYCHOSIS AND DEMENTIA PRÆCOX. GORDON, *Journ. of Nerv. and Ment. Dis.*, Jan. 1912, p. 24.

(239)

GORDON first gives a brief account of what he calls the "new" psychosis of Kraepelin, and then describes four cases which presented difficulties in diagnosis. He calls attention to the well-known circumstance that a case with manic-depressive symptoms, but having emotional deterioration, is likely to prove to be one of dementia præcox.

ERNEST JONES.

THE MENTAL PROCESSES IN SANITY AND INSANITY. T. CLAYE SHAW, *Lancet*, Jan. 27, 1912, p. 211.

(240)

THE author points out that there is no difference in the *processus mentis* which leads one medical man to say that a criminal is

insane and another that he is not. Each may be sincere in his convictions. The difference consists in the way in which the process of reasoning starts, but there is no difference in the accomplishment, and the difficulty lies in finding out the prime cause which started the process.

Many of the manifestations in health and disease run in parallel lines, and since it frequently happens that observations have to be made and decisions arrived at during this career of parallelism it is easy to see that there is plenty of room for divergence of opinion as to where the symptoms started, and how they will eventuate.

To have one man averring on oath that a certain person is insane, whilst another with equal conviction declares that he is not, seems to be ridiculous, and juries are puzzled and experts blamed when absolutely contradictory statements are made and judgments founded upon what is really an incomplete investigation —*i.e.*, the courses of processes which use the same rails, but have different starting points. The juries see that the process of travel is the same in the two cases, and the experts cannot explain the difference in the diverging centres. A. NINIAN BRUCE.

THE RESISTANCE OF LEUCOCYTES IN CASES OF MENTAL DISEASE. (La resistenza dei leucociti nei malati di mente.) G. FORNACA, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 1, Feb. 8, 1912.

(241)

THE author uses the method of Achard. It is hardly necessary to say that any results obtained by this method can only be accepted with the greatest caution, depending as they do on values assigned to the relative clearness with which the nuclei of the various forms of white cells are stained. The author, however, does not hesitate to conclude that there is a general increase of resistance in the leucocytes of the insane, and that this is most marked in cases of epileptic insanity. F. GOLLA.

TREATMENT.

POSSIBILITIES OF A MODIFIED PSYCHOANALYSIS. E. W. TAYLOR, *Journ. of Abnorm. Psychol.*, Feb. 1912, p. 449.

(242)

TAYLOR considers that the value of the psycho-analytic method in the treatment of the psychoneuroses is so great that it is unfortunate to find restrictions being placed on its applicability by a too great insistence on thoroughness. He therefore puts in a plea for attempting simpler and more elementary analyses in certain cases, recognising, of course, that in many cases more complete investigations are necessary. In this way, he thinks, the method would become of more service to the general practitioner than has hitherto been the case. ERNEST JONES.

A CASE OF HALLUCINOSIS INDUCED BY REPRESSION.

(243) OBERNDORF, *Journ. of Abnorm. Psychol.*, Feb. 1912, p. 438.

THE author describes a part analysis of a case of hallucinatory psychosis, expounding the meaning and origin of the various hallucinations by tracing them to different mental processes referring to the patient's intimate life. The effect of the line of treatment was satisfactory, particularly when compared with the external situation of the patient's life, which was such as almost to preclude any hope of recovery. ERNEST JONES.

MEETING OF CONGRESS.

PROGRAMME of the meeting of the International Leage against "Epilepsy," to be held at Zürich, 6th and 7th September 1912.

A. Business meeting (*Pres.* Tamburini, von Monakow).

1. Time and place of next meeting.
2. Election of the International Committee.
3. Discussion of statutes ("Epilepsia," 2 Vol., 4th fasc., p. 321).
4. Relation between Leage and national association and committees.
5. Relation between Leage and its organ.
6. Programme for next meeting.

B. Scientific meeting (*Pres.* Forel, Donath).

1. Theme for discussion: "Saltless Diet," introduced by Prof. Donath, Buda-Pest; Dr Ulrich, Zürich; and Dr Balint, Buda-Pest.
2. Theme for discussion: "Alcohol-epilepsy," introduced by Prof. O. Binswanger.
3. Paper on: "La thérapeutique pluriglandulaire comme adjuvant du traitement de l'épilepsie," by Prof. H. Claude (Paris).
4. Paper by Dr Aldren Turner (London): "The Curability of Epilepsy."
5. H. Sommer (Giessen): "Motorische Erscheinungen bei Alcohol-Epilepsie."
6. Paper by Prof. Mingazzini (Rome).
7. Paper by Dr Munson (Sonyea, N.Y.).
8. L. J. J. Muskens: "Myoclonic Reflexes in Invertebrate Animals."
9. Prof. Lépine (Lyon).
10. Prof. Kümmel (Hamburg).

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33 Nervierstraat, Antwerp. 286 Overtoom, Amsterdam.

BOOKS AND PAMPHLETS RECEIVED.

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Review
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Neurology and Psychiatry

Original Articles

SIGNIFICANCE OF THE BABINSKI REFLEX.

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The phenomenon of extension of the big toe as a response to stimulation of the sole of the foot, which is met with in certain morbid conditions of the nervous system in adults, was first noticed by Babinski in 1898, and later was fully investigated and described by Collier at Queen's Square Hospital, London.

At first the greatest emphasis was laid upon this change in the response from flexor to extensor as a most valuable discovery of a definite sign whereby organic disease could be for certain differentiated from functional, and it was firmly maintained that the presence of the Babinski reflex was an undoubted proof of the existence of some organic disease in some part of the pyramidal tract.

So definite and striking a phenomenon naturally became the subject of much investigation by neurologists all over the world, and it was not long before statements were made which tended to throw doubt upon the phenomenon as being a certain differential sign of organic from functional disease. Cases were quoted in which the Babinski reflex was present where it ought not to have been—that is, where there was no other sign or evidence of organic nerve disease; and it was absent when, according to the working hypothesis, it should have been present. As a result of

this criticism, the value of this reflex has been lowered in the eyes of some who have not troubled to investigate the matter for themselves, nor to arrive at any explanation of these apparent deviations from the rule formulated by Babinski and others.

In a normal condition of the adult nervous system, stimulation of the sole of the foot—in other words, of the termination of the first sacral posterior nerve-root—results in a flexion of all the toes, and inversion of the foot, and this appears to be a simple reflex, an extension of the stimulus from the afferent sensory to the efferent motor tract.

But it is not always a simple response, for we know that frequently the stimulus spreads, and not only excites the flexors of the toes and the invertors of the foot, but also the muscles of the thigh, especially the tensor vaginæ femoris, and this is more frequently noted in cases of active response to the plantar stimulation.

Why the excitation of afferent responses from the sole of the foot, in cases where there exists some morbid condition of the pyramidal tract, should result in a stimulation of the extensor muscles of the toes, especially the hallux, and the evertors of the foot, is a matter which awaits explanation, though it is significant —as pointed out by previous writers—that the extensor response is the normal condition of the plantar reflex in the anthropoid apes, and in young children before they begin to walk.

Another phenomenon which rather adds to the difficulty of the explanation is that of the crossed plantar reflex. In some cases of hemiplegia, stimulation of the sole of the foot on the paralysed side will result in the usual extensor response; but if the stimulus be applied to the sole of the foot on the healthy side there will be a flexor response in the paralysed side also. These variations in the responses to plantar stimulation in different conditions certainly suggest that the plantar reflex is not so simple as it appears. Otherwise, why should some abnormal condition of the pyramidal tract lead to such a striking alteration in the reflex response?

In the use which has been made of this reflex action in the differentiation between organic and functional nerve disease, it has been assumed that the organic disease is situated in the pyramidal tract, and that the occurrence of the Babinski reflex shows the existence of some organic disease of these tracts. Now, further investigation of those conditions under which the extensor response

occurs, will show that the existence of permanent organic disease of the pyramidal tract is not a *sine quâ non* for its occurrence; and that a mere temporary interference with the conduction of impulses along them, or with their origin in the brain, is sufficient to determine the occurrence of the Babinski reflex; and since this is so, it is thus possible to explain the discrepancies which have existed in the reports of different observers, as to the existence or not of this phenomenon, in cases of functional nerve disease.

But I would go a step further. Many years ago, Dr Seymour Sharkey, of St Thomas's Hospital, London, in his lectures before the Royal College of Physicians, pointed out that the exaggeration of the deep reflexes was always due to pressure upon the pyramidal tract; and that one never observed the exaggerated knee jerks and ankle clonus of organic disease unless this morbid condition of the motor tracts were present.

I believe that this generalisation of Sharkey's still holds true for the occurrence of the Babinski reflex; and this is not surprising at first sight, when we consider the frequency with which the Babinski reflex is associated with exaggeration of the deep reflexes.

I will quote two cases to illustrate the fact that pressure on the pyramidal tracts—which may be temporary only—is sufficient to determine the alteration from flexor to extensor response in the plantar reflexes.

The first case was one of hydatid cyst of the left frontal region of the brain in a boy 14 years of age, which I reported in the *Australasian Medical Gazette* several years ago. In this case the clinical symptoms and signs of cerebral tumour had existed for some twelve months before I saw him, and all the signs pointed to an hydatid cyst in the left frontal region. There was no definite hemiplegia or paraplegia, but a general weakness in all the limbs. But a striking feature was the well-marked Babinski reflex obtained on both sides. This was a constant feature of the case, and was noted when he was placed on the operation table, and after the chloroform narcosis had become complete. After trephining, the cyst was aspirated, and about 4 oz. of hydatid fluid were withdrawn. On testing the plantar reflex after this was done, it was noticed that the extensor response had become flexor. Nothing further was done at this stage, and the wound was stitched up. The removal of the fluid and the relief of tension

not only gave relief to the subjective symptoms, but the plantar reflex continued to show flexor response for some days, until, in fact, the refilling of the cyst led to a recurrence of the symptoms, and again the plantar reflex became extensor in type. Subsequent operation, with removal of the fluid and cyst wall, again led to a flexor type of plantar reflex.

Now, this case, I think, conclusively shows that increased intracranial pressure alone is sufficient to determine the occurrence of the Babinski reflex; but whether that pressure must be in such a position as to cause direct compression of the pyramidal tracts in their course in the pons and medulla through the foramen magnum (and this would seem more probable from the fact that the response was bilaterally extensor), or upon their radiation in the centrum ovale, it is impossible to decide from this case alone.

But what I want to emphasise is, that this case shows that—as the immediate result of relief of pressure on the pyramidal tract or on the brain—a well-defined double Babinski reflex can be converted into a normal flexor response, provided, of course, that the pyramidal tracts are not themselves the seat of organic change.

The second case was a girl, 16 years of age, with a strong tubercular family history, who was admitted to the Royal Prince Alfred Hospital under my care some years ago. She complained of pain in the back and in both legs, and an examination showed exaggerated reflexes and double Babinski reflex on both sides. She became, rather rapidly, completely paraplegic, with loss of control of sphincters and loss of the deep reflexes, though the Babinski was retained feebly. Examination of the spine with X-rays was negative, but lumbar puncture resulted in the withdrawal of some cms. of fluid under pressure, which, however, showed no tubercle bacilli, and was sterile. The result of the puncture was remarkable, for in a very short time she recovered the use of her legs, control over the sphincters, and the exaggeration of the reflexes, and the Babinski reflex disappeared. She walked out of the hospital unaided, and has reported herself well on several occasions since.

Here, then, is another case in which relief of pressure on the spinal cord resulted in a change of type of the plantar reflex from extensor to flexor.

This latter case might be regarded by some as one of hysterical paraplegia, and be used as proof that the Babinski reflex does occur at times in purely functional cases. Quite apart, however, from the question of the plantar reflex, I am convinced that this was not a case of hysterical paraplegia, for the whole history of the patient, the mode of onset, its progress to a complete paraplegia with loss of sphincter control, and the recovery which ensued—only after relief of pressure on the cord by lumbar puncture—pointed conclusively to some organic disease; but the subsequent progress of the case showed that she was not suffering from any permanent organic change in the pyramidal tract.

I will quote another case of different type, which again shows that the Babinski reflex may be a well-marked temporary phenomenon.

Some years ago I was asked to see a boy of 14 years of age who had a bad neurotic family history, and who himself had been subject to headache, apparently of the type of migraine. He had left his home in the morning with a headache, and had gone to his work in the city. Shortly afterwards he was found in a cellar at his place of work apparently unconscious, and paralysed. He was taken home, was seen by a local doctor, who, later in the day, asked me to see him in consultation. Suffice it to say that this boy presented all the phenomena of right-sided hemiplegia with aphasia, with a Babinski reflex on that side. Further inquiry into his past history revealed the fact that he had had a previous similar attack. On the strength of the history of migraine, and the probability that this was another migraine attack, I gave a favourable prognosis. I saw him again three days later, when the whole condition had practically cleared up; his Babinski reflex had disappeared, and his reflexes were normal. Here again, though recovery was complete in a very short time, there can be no doubt that there was some temporary organic change in the brain (whatever the nature of it may have been), causing pressure on the pyramidal tract. Whether or not he had some underlying organic disease, such as a tumour or cyst, is beside the question at present. I quote the case as a further illustration of my contention that the Babinski reflex may be a merely temporary condition, and, therefore, not significant of permanent organic nerve disease.

If, then, we realise that the Babinski phenomenon may be

a temporary one, associated with some alteration in the physical condition of brain or spinal cord—sufficient to induce pressure upon the pyramidal tracts, or some interference with the conduction of impulses along them—we shall be able to estimate the true significance of this reflex. Whether, in an individual case, it points to temporary or permanent organic disease must be determined by the other features of the case and its progress.

ON THE FREQUENCY OF BLINDNESS AS A SEQUEL TO ORGANIC BRAIN DISEASE.

L. J. J. MUSKENS, M.D., and W. SNELLEN, M.D., Amsterdam.

DURING the continual study, for many years, of a series of cases of brain disease, we were struck by the fact that so few patients with brain tumour or pseudo-tumour come under the observation of the ophthalmologist and neurologist, partly owing to the late appearance of visual disturbance from choked disk, and partly on account of the obscureness of the cerebral symptoms.

From various cases occurring in our own practice, in which blindness remained after retrogression of brain disease, we thought that a similar history might be elicited if a large number of blind persons were examined. Originally we anticipated that, in these cases, we had to deal with a tuberculous or syphilitic process, or a tumour that had been arrested either spontaneously or under the influence of treatment. Since, however, of late years, the clinical entity of pseudo-tumour, and especially of encephalo-meningitis serosa, attracted our full attention, it soon occurred to us that we might have to deal particularly with this possibility.

Our problem, therefore, took this form—what percentage of the blind, taken at large, suffer from atrophy of the optic nerve as a sequel to choked disk and neuritis optica, the original cause (local or general brain disease) being cured or arrested? This question has indeed a great practical importance, since at present the retrogression of choked disk under the influence of palliative operation is recognised in all civilised countries.

Should we be able to establish the probability of the above diagnosis of optic atrophy, resulting from a transient cerebral affection causing temporarily increased intracranial tension and

choked disk in a large number of blind people, the twofold conclusion should then follow, firstly, that probably in these cases a palliative operation might have prevented the optic atrophy, and secondly, that a curable brain disease, most probably meningitis serosa, leads in a larger percentage of these cases to blindness than had been previously realised. Since the publications of Sir Victor Horsley (1), Sir Marcus Gunn (2), von Hippel (3), Gowers and Cushing, a similar result could hardly be expected to cause any amazement.

The first question was, what kind of institution for blind people shall we take as a subject for our investigation? One for the young or one for the adult? Inasmuch as ample correspondence with a number of medical men as well as with the parents of our patients could be expected, we supposed that an institution for the education of young blind people such as the one in Amsterdam would be the proper place for such an inquiry. For in these cases the malady that caused the optic atrophy did not date far back, and the chance appeared therefore so much greater that we might arrive at a probable diagnosis from anamnestic dates. The age of the pupils of this school varied from 8 to 18 years. In the year of our observations the school inmates numbered ninety-eight, the boys slightly preponderating over the girls.

As our investigation advanced we grew convinced that our problem at all events had to be divided into two groups, one for young people and one for adult patients. For the latter category an independent inquiry will have to be carried out later. It is, moreover, a well-known fact among neurologists that generally the course of cerebral processes in children can be distinguished in many respects from that in the adult. Oppenheim has called attention to this, where he described cases of curable encephalitis in children from 1 till 13 years. According to Payr the conditions for the formation of cerebro-spinal fluid are different in the child than in the adult.

Upon analysis of our material we found that we had to deal with a great number of cases where the diagnosis of a former brain disease became apparent even with the most superficial observation. The white but clear pupils, the frequently large skull, in some cases some paresis or an ataxic gait, but especially the anamnesis from the children or their parents, did not leave

us any doubt. If, in the history of the children, periods of severe headache with vomiting, a passing hemiplegia or convulsions, even lumbar punctures and (in one case) a palliative operation in the cerebellar region, were found, we had not the slightest doubt that the blindness was a sequel to an arrested brain disease. These cases are frequently found especially in the first set (three sets of ± 30 were examined) of our cases. A second large group of cases we examined where this ætiology was lacking with certainty or, at least, great probability. There we had undoubtedly atrophia bulbi or occlusio pupillarum, at all events indications of a purely local bulbar disease. In a third very large group of cases a diagnosis *a posteriori* appeared an impossibility, *e.g.*, an ocular disease in such early youth that the memory of the patient was of no use to us, an equally incomprehensible story of the parents about fever, convulsions, brain disease, paralysis, all of which could not bring us clearness. Moreover, cases were met with where the medical attendance had been slight and the ophthalmologist consulted only after the amaurosis had been discovered, and we therefore had to fall back upon the results of our objective examination. Thereby ophthalmoscopy was often very difficult on account of the violent nystagmiform jerks and the lack of co-ordination and power over their ocular movements, which is so frequent in these blind children.

From the neurological standpoint it appeared practical to divide all our cases into two large groups, those with transparent and those with obscured ocular media, and then to examine only the first group carefully in order to find out those cases in which some cerebral disease had caused the amaurosis. This appeared, however, not to be feasible as soon as we found out that patients becoming blind after and secondary to brain disease not uncommonly suffer from ulcera corneæ and subsequent iritis and uveitis, and thus this division never could answer all purposes. We have therefore principally examined all cases by neurological and ophthalmoscopical methods, where either some former or some present brain disease appeared probable and in the majority of the patients this ætiology appeared a possibility. As one sees from our histories, we not uncommonly could not arrive at any diagnosis *a posteriori* at all. In most cases, however, a full correspondence with the medical attendant of the patient and more so with the ophthalmologist consulted by him at the time of his

disease, led us to our conclusions. From our histories it will strike the reader how relatively rarely a neurologist or psychiatrist was consulted.

The total number of pupils present in the institution during 1908 amounted to ninety-eight, the number of patients where a careful examination appeared necessary being fifty-one.

We came to this result as follows: firstly, of these ninety-eight inmates, in not less than twenty-two (therefore more than 22 per cent.) the blindness was not the sequel of an ocular disease, but of a cerebral; secondly, many of these cases at the time of that cerebral affection had suffered from very slight brain symptoms and seldom or never had been examined by neurologists; in many other cases the former existence of the complete symptomatology of a tumour cerebri (in this case pseudo-tumour cerebri) could not be doubted. A careful perusal discloses among our cases various types of serous encephalo-meningitis, especially the migrating form.

A short *resumé* is now given of the cases where the blindness, in our opinion, has to be ascribed, not to any ocular disease, but to a spontaneously cured cerebral affection.

No. 1. F. L., 18 years; admitted 1901.

Ophthalmological Diagnosis.—Atrophia papillæ. Venæ still somewhat enlarged. The vision of the right eye (V.O.D.) = zero. The vision of the left eye (V.O.S.) = zero.

Neurological Diagnosis.—Arrested serous meningitis of the left hemisphere after fracture of the basis cranii. Now hysterical symptoms are prevailing. Rather intellectual boy. Knee jerks absent. Paresis of the right foot. Fine quick nystagmus with the rapid jerk to the left. Smell—R. = L. = 20 olfactories.

Addendum.—Patient was admitted to the Hague City Hospital upon 30th June 1892. Compressio cerebri after falling from a chair; convulsions; loss of consciousness; œdema of the right side of the face. After eight weeks, complete blindness. Rupture of the optic nerves was excluded.

No. 2. J. D., 12 years old; admitted 1906.

Ophthalmological Diagnosis. — Atrophia papillæ. Pupils stiff. V.O.D. = V.O.S. = zero.

Neurological Diagnosis.—Arrested encephalo-meningitis serosa (or hydrocephalus) after an injury to the head. Intelligence normal. Present symptoms: rarely headache or convulsions; Achilles and knee jerks absent. Spontaneous ocular movements of great range

in all directions, not dependent on patient's will. Smell—R = L = 20 olfactories.

Addendum.—Dr Herzberger saw patient after the injury to the head (1898), caused by a fall with the occiput on a dust tub. Loss of consciousness. Convulsions of hands and feet. Choked disks.

No. 3. F. R., 13 years old; admitted 1905.

Ophthalmological Diagnosis.—Atrophia N. optic. It is impossible to make an ophthalmoscopic examination. Papillæ have a white appearance. Pupils rather large, stiff. V.O.D. = V.O.S. = zero.

Neurological Diagnosis.—Arrested meningitis serosa after an abscess of the cervical region. Intelligence normal. Present symptoms: limps on the left foot better than on the right, although patient is right-handed. Very marked nystagmus, rapid jerk to the right. Permanent maximal lateral deviation to the right. Smell—> L. R = 20 olfactories.

Addendum.—Dr Meihuizen saw patient for the first time after complete blindness had developed. At no time was there any paralysis.

No. 4. C. de R., 14 years old; admitted 1907.

Ophthalmological Diagnosis.—Atrophia papillæ. Vessels rather thin. Pupils wide, react very little. Divergent strabismus. V.O.D. = V.O.S. = 1/~.

Neurological Diagnosis.—Arrested meningitis serosa recurrens (generalis?) or tumour. Intelligence perfect. Present symptoms: Occasionally heavy headache, knee jerks exaggerated, patient is able to converge the eyeballs in the mid position, but when looking laterally, nystagmus appears. "Turmschädel," circumference 51 cm. Smell—15 olfactories.

Addendum.—Dr GRAFTDIJK—The symptoms at the time of the acute disease (1½ years ago): Heavy headache and vomiting for several weeks. Dr DIJCKMEESTER—Vision V.O.D. = V.O.S. = 5/60. Papillitis: Swelling, vessels winding. Irregular exudations. No albumen or sugar in urine. After some time atrophy and less headache. Vision at that time 2/300. March 1909: Patient got faintings and went home.

No. 5. J. v. M., 16 years old; admitted 1902.

Ophthalmological Diagnosis.—Papillæ albæ; vessels rather thin. Pupils react still a little to light. V.O.D. = 6/36. As. M. 2½ V.O.S. = 6/36. As. M. 2½.

Neurological Diagnosis.—Arrested encephalo-meningitis acuta. Present symptoms: Vague slow movements of the eyeballs. Impossibility to converge eyeballs. Extreme lateral positions cannot be reached. No nystagmus, but absolute uncertainty and irregularity of the ocular movements.

Addendum.—Dr K. P. LETTE informs us: While patient was

10 years old he observed severe headache and fever. Speech was very difficult. There was abnormal position and motility of the eyeballs. Vision diminished. Choked disks. Amblyopia congenita (?) was the diagnosis of the ophthalmologist.

No. 6. J. v. B., 16 years old; admitted 1901.

Ophthalmological Diagnosis.—Papillæ albæ. Vessels normal. Pupils wide, no reaction. Nystagmus. Slight divergence. V.O.D. = V.O.S. = zero.

Neurological Diagnosis.—Arrested encephalo-meningitis serosa generalis (?) after an affection of the right internal ear. Now tinnitus auris dextræ. Intelligence normal. Present symptoms: Knee jerks left side lively; on the right side absent. Circumference of the head 59·5 cm. ("Turmschädel"). She can never find a hat that suits her. Heavy nystagmus to the left side; divergence of bulbi. Smell—R. = 40 olfactories. L. zero.

Addendum.—Prof. SNELLEN sent patient to a neurological department (Prof. WINKLER).

No. 7. C. H., 15 years old; admitted 1906.

Ophthalmological Diagnosis.—Atrophia papillarum; vessels thin and no pigment. Pupils normal width. V.O.D. Macula cornea. V.O.D. = V.O.S. = 0·5/300.

Neurological Diagnosis.—Encephalo-meningitis serosa migrans to the left hemisphere. Patient has difficulty with learning. Present symptoms: often headache combined with cerebellar titubation and dizzy spells. Right leg is dragging. Divergency of bulbi. Smell normal.

Addendum.—Had normal vision up to his 13th year. Had rickets as a child. From 10th year headache with vomiting and dizziness. Used to walk as if drunk. Right leg dragging, was treated in several hospitals.

No. 8. R. B., 15 years old; admitted 1901.

Ophthalmological Diagnosis.—White atrophy of the optic nerves. Vessels normal. Reaction of pupils absent. V.O.D. = V.O.S. = zero.

Neurological Diagnosis.—Encephalo-meningitis serosa of the left hemisphere, or arrested cerebral syphilis. Present symptoms: rarely headache; patient has been deaf since shortly after the disease. While looking to the left a rapid nystagmus is observed, if looking to the right a slow one. There is uncertainty in the mesial position, no continuous nystagmus. There is complete anosmia.

Addendum.—Since 7 years patient has been blind, has become so slowly with much headache. Patient's medical attendant thought it a case of brain syphilis. Ophthalmologist SCHOUTEN found atrophia papillaris incipiens.

No. 9. S. D., 11 years old; admitted 1904.

Ophthalmological Diagnosis.—Papilla alba. Maculæ corneæ. R. L. Pupils react to light, not on convergence. V.O.D. = V.O.S. = 1/300.

Neurological Diagnosis.—Encephalo-meningitis serosa post-infectionem chron. Present symptoms: left leg paretic; is unable to limp. Reflexes normal. Requested to fix her own fingers, eyeballs remain quite still, 25° deviated to the left. Continuously spontaneous changes in the size of the pupils are observed. Slow nystagmus to the left. Smell—L. = R. = 300.

Addendum.—Patient had good vision before the disease. Within a year after measles with pneumonia a severe headache arose on the right side. Much vomiting. Slowly became blind. Had a long time the gait of a drunken person. Consulted an ophthalmologist (Prof. MULDER), atrophy having developed. Later on she became quite cured.

No. 10. F. v. W., 11 years; admitted 1905.

Ophthalmological Diagnosis.—Papillæ albæ; veins still enlarged and hazy. Pupils enlarged, no reaction of light. V.O.S. = V.O.D. = zero.

Neurological Diagnosis.—Encephalo-meningitis serosa or hydrocephalus int. or some other arrested cerebral disease. Present symptoms: frequently headache; no nystagmus. Mental capacity very satisfactory. Smell—R. = 300, L. = 2000.

Addendum.—When 8 years of age, patient had much headache and vomiting. No dizziness. Dr de Haas and Dr R. van Senus inform us that on 25th July 1906 there were choked disks and vision = 6/30. On 7th November 1906 there was marked atrophy. Recently he had some fits with loss of consciousness. Exact diagnosis appeared not feasible. At present frontal headache—died after acute exacerbation of the cerebral symptoms in coma in the University Hospital, Nov. 1908. Autopsy: large tuberculous deposit in both occipital lobes with hydrocephalus.

No. 11. J. D., 10 years; admitted 1908.

Ophthalmological Diagnosis.—Atrophia papillarum R. = L. vessels normal in size. V.O.D. = V.O.S. = zero.

Neurological Diagnosis.—Encephalo-meningitis serosa (?) chronica. Present symptoms: Once and a while severe headache; of late becoming rare. Knee reflexes very exaggerated, no clonus.

Addendum.—Became blind in his third year, suffered before from headache with vomiting, less so now. Prof. Koster informs us: 21st Oct. 1903: O.S.". L. pupil reacts slightly to light, right pupil does not react at all. Fundus O.D. and S. atrophia nervi optici post neuritidem. Two years ago vision became feeble. No more information about the original cerebral disease.

No. 12. B. v. d. S., 15 years; admitted 1908.

Ophthalmological Diagnosis.—Pupils normally wide, react to light. White atrophia papillarum. Vessels normally wide. V.O.D. = A. V.O.S. = 1/60 in the periphery of the visual field.

Neurological Diagnosis. — Encephalitis infantum of encephalo-meningitis serosa. Present symptoms: Strabismus divergens O.D. Irregular, sometimes rotatory nystagmus.

Addendum.—Since his 4th year patient's vision is getting feeble, after infantile convulsions. The mother does not know whether fever or vomiting accompanied this disease. There was protrusion of the eyeballs when he got better.

No. 13. E. M., 11 years; admitted 1907.

Ophthalmological Diagnosis.—Papillæ albæ, vessels rather narrow. Pupils react to light. V.O.D. = $\frac{0/5}{60}$, counts the fingers on $\frac{1}{2}$ M. distance. V.O.S. = 1/300 (notices movement of the hand on 1 M. distance.

Neurological Diagnosis.—Encephalo - meningitis serosa cerebelli. Present symptoms: Left knee jerks, diminished right knee jerk exaggerated, is unable to hop on either foot. Large osteoplastic scar in cerebellar region.

Addendum.—Rachitis; from earliest youth headache. After a fall from the stairs, Jan. 1907, headache became more severe and vomiting. Unsteady gait. 11th Feb., Dr Schoute: Choked disks. Vision normal. Diagnosis: Congenital neuro-papillitis. Operation by Dr Korteweg: Vision was already diminished before the operation. Prof. Koster: Three weeks after the operation V.O.S. = $\frac{0{\cdot}5}{50}$ = V.O.D. = $\frac{0{\cdot}65}{60}$ O.D.S. neuro-retinitis. Headache and vomiting cured after the operation. Vision not entirely absent. Prof. Koster found after some weeks the convergence of the pupils improved. Sometime later he found V.O.S. = $\frac{1}{\sim}$, V.O.D. = 6/120.

No. 14. W. S., 16 years; admitted 1902.

Ophthalmological Diagnosis.—O.D. atrophia bulbi. O.S. buphthalmos three times iridectomy; media perfectly translucent. Papilla atrophic and deeply excavated. Pupils react slowly. V.O.D. = zero, V.O.S. = $\frac{1{\cdot}25}{300}$.

Neurological Diagnosis.—Cerebral affection of unknown origin. Present symptoms: intelligence, especially memory, has suffered greatly.

Addendum.—Dr Piekema informs us: "When he saw patient for the first time he was perfectly blind on one side, and the vision of the

other eye amounted to 1/20; he only acquired the information that from the seventh till tenth year there had been a cerebral disease. Patient says he suffered greatly in that time from his brain trouble, had heavy front headache and vomited daily.

No. 15. H. B., 15 years; admitted 1902.

Ophthalmological Diagnosis.—O.S. Occlusio pupillæ, striated keratitis. O.D. anophthalmus. V.O.D. = V.O.S. $\underset{\sim}{-1}$.

Neurological Diagnosis.—Cerebral affection and probably ætiologically in relation to irido-cyclitis developed afterwards. Present symptoms: deep reflexes exaggerated. Had an unsteady gait for several years afterwards. Patient is able to direct the eyeballs in all directions, but in an unsteady way.

Addendum.—Poliomyelitis acuta (?) was diagnosed from patient's physician. Patient was during 3 (or 13) weeks unconscious. After this disease the ocular trouble began. The right atrophic eye was later on removed by Professor Mulder.

No. 16. C. van G., 15 years; admitted 1908.

Ophthalmological Diagnosis.—Atrophia papillæ. V.O.D. = V.O.S. $\underset{\sim}{-1}$.

Neurological Diagnosis.—Epilepsia genuina after brain disease, which was acquired when 10 months old, and was accompanied by fever symptoms. Present symptoms: occasionally epileptic fits.

Addendum.—Patient is at his home now. Dr van Dam informs us that he treated the case in the beginning; patient had had convulsions, and was 4 weeks unconscious.

No. 17. H. B., 13 years; admitted 1903.

Ophthalmological Diagnosis. — Atrophia bulbi on both sides. Nothing to be seen of the cornea: there is no vision at all.

Neurological Diagnosis (Hydrocephalus?).—Present symptoms: besides the hydrocephalic enlargement of the skull nothing particularly is noticed. Intelligence very good. Patience hops on either leg separately. Knee jerks normal. Sometimes headache in the temporal region. Patient is not able to direct the eyeballs to any side, *e.g.*, being invited to look upward, both eyeballs turn down.

Addendum.—The family medical attendant never saw patient at the time of her disease. In the family there is a history of brain disease, but we find nothing that can lead us to accept that theory, rather it appears probable that there had been a purulent process about the scalp, which was treated by the mother without medical advice.

No. 18. L. H., 16 years; admitted 1903.

Ophthalmological Diagnosis.—O.D.S. atrophia papillæ. Vessels normal. Pupils react on light. There is some exophthalmos. V.O.D. = O. V.O.S. = $\frac{0.3}{60.}$

Neurological Diagnosis.—Arrested meningitis tuberculosa. Present symptoms: Very asymmetrical scalp. Patient is of strong constitution, never suffers from headache, hops on either leg. Knee jerks not to be elicited. Is somewhat backward. If he looks forward or sidewards there is always a fine equal rapid nystagmus.

Addendum.—Patient's father took excess of alcohol at the time of patient's conception. As a baby it was noticed that patient did not notice light, had often headaches, followed by vomiting. An ophthalmologist is said to have prescribed spectacles. The brother died of tuberculous meningitis.

No. 19. A. S., 18 years; admitted 1905.

Ophthalmological Diagnosis.—Atrophia papillarum after optic neuritis (?) as early as 1904, Prof. Mulder stated. V.O.D. = V.O.S. = $\frac{1}{\sim}$.

Neurological Diagnosis.—Meningitis serosa acuta (?) [1] (after otitis ?) after epileptic convulsions. Present symptoms: On account of early departure patient could not be examined sufficiently.

Addendum.—The father writes us: "4 years old patient felt ill. Under influence of medicaments 30 worms came away. After 4 days there were convulsions and afterwards the eyes appeared 'broken.' About that time purulent secretions from the ear were complained of, and the head grew thick. Some time after regularly epileptic convulsions."

No. 20. A. M., 15 years.

Ophthalmological Diagnosis.—Scotoma centralis. Colour of papillæ normal. Vessels very narrow. No abnormal pigment. Atrophic patches along the vessels. V.O.D. = V.O.S. = 2/60 (only excentrically).

Neurological Diagnosis.—Present symptoms: pupils small, reaction to light present. No nystagmus. Knee jerks, on the right slightly present, on the left absent.

Addendum.—No further information.

No. 21. M. H. B., 17 years; admitted 1907.

Ophthalmological Diagnosis.—Extremely wide disks, vessels rather narrow; pupils equal, wide, no reaction to light, &c. Atrophia papillæ, as found after inflammation. V.O.D. = V.O.S. is O.

[1] In this case (santonin felix-mas) atrophy of the optic nerve cannot be excluded, although this would not account for the fits.

Neurological Diagnosis.—Lues hereditaria (?). Present symptoms: High palate; bad teeth; knee reflexes present. No nystagmus. Patient was always backward for his age.

Addendum.—Measles when 7 years of age and pneumonia. Afterwards a period in which patient used to see stars before her eyes. Slowly everything grew green to her; she did not vomit. After this she began to see figures. The mother is myopic; also a brother is suffering from the eyes (according to Dr Tuyl, hereditary syphilis).

No. 22. T. v. d. M., 14 years; admitted 1905.

Ophthalmological Diagnosis.—Atrophia papillarum subsequent to hydrocephalus. Very white disks. Vessels not particularly narrow. No pigment. V.O.D. = V.O.S. = $\frac{0{\cdot}5}{60}$.

Neurological Diagnosis.—Arrested hydrocephalus. Present symptoms: movements of bulbi slow, not co-ordinated. When trying to look sidewards, slow jerks with a great amplitude to that side. When in medium position some slow jerks upward are observed. Patient has an abnormal skaphocephalic skull (formerly hydrocephalus?). Knee reflexes absent. Can stand and go on either foot.

Addendum.—Patient distinguishes faintly his surroundings, but complains he has always been poor-sighted. He was ill, he says, in his 8th year. Mother and sister are in an insane asylum. No blind people in the family.

As a result of this examination, we find *that no less than* twenty of the fifty-one blind persons examined represented cases of arrested brain disease, which had resulted in optic atrophy and blindness. Also cases 19 and 20 should be included, although the poor information which we got from the physicians who attended the patients at the time of the disease does not permit us to state with exactness *a posteriori* this diagnosis.

Only in one case had a palliative operation been performed, and here some vision, $\frac{0{\cdot}5}{60}$, has been preserved. This may prove how little ophthalmologists resort to this operation, although Sir Marcus Gunn, Krügener, von Hippel, and other ophthalmologists have for a long time urged that operation should be carried out before the vision has suffered.

The first objection which we have to encounter is, that possibly our clinical material might be responsible for this surprising result. We believe, however, that had we examined all sorts of blind persons, whether taken care of at home or in an institution,

we should have found even a greater percentage of cases. Firstly, our choice of fifty-one cases out of ninety-eight whom we examined carefully does not mean that no cases occurred among the forty-seven patients not examined in whom some secondary lesion had affected the eyes, after the brain disease had caused blindness primarily. For it is evident that the blind eye is far oftener exposed to traumatic lesions than the seeing one. Such cases ought to be added to the percentage that we have found. A second reason for supposing that our result is rather below reality, is to be found in the circumstance that our patients are already choice cases. For children with defective intelligence and also children with epileptic fits are not admitted into the above institution. It is clear that in these non-admitted cases probably a greater percentage of sufferers from some organic brain disease would be found.

A further objection that could be made is that only in one of our cases was an autopsy performed, and that therefore in most of our patients the exact diagnosis remained in suspense. We must admit this, but at the same time we have to recall that we have only spoken of cases with "arrested brain disease" or of "some disease having caused increased intracranial tension."

We believe that the clinical information we could gather about the patients, the family history, and the present symptoms, warrant our supposition, that the different types of encephalo-meningitis serosa (local, migrating, as well as the hydrocephalic varieties) in the majority of the cases may have caused the increased intracranial tension. One of us has recently described a number of cases where this diagnosis had to be made either *durante operatione* or *post mortem*.[1]

The fact that in this institution for young blind people it is the experience of the teachers that cerebral affections of different types (hemiplegia, epileptic and epileptiform fits) are of frequent occurrence among the pupils and ex-pupils of the institution in the first ten years after their admission, tends to corroborate our conclusion. Not less than seven out of a hundred of the pupils die during this period, mostly with symptoms of brain disease. Here it must be taken into account that very many of the pupils at the time of admission are already feeble and nervous individuals. It

[1] *Epilepsia*, Vol. ii. 1910, pp. 52-109, and *Deut. Ztschr. f. Nervenheilk.*, Vol. 39, 1910, pp. 421-458.

is well known also that extensive tuberculous and syphilitic brain affections in the young, leaving intrinsic and extrinsic anatomical changes in the cerebral hemispheres, may be practically completely cured and leave no, or only few, symptoms behind. The only case (No. 13) in which palliative operation was performed needs some nearer description. The fact that the vision had suffered in this case before the operation shows that the fourth stage (after the late Sir Marcus Gunn) had been reached. For in the first three stages of choked disk the congestion may be very intense, but vision remains intact. Here therefore, as well after Gunn's as after our own observations[1] the operation was performed too late. Yet some vision was saved by the late operation. The commencing atrophy developed anatomically a little more, but the operation prevented absolute amaurosis. This case is in so far very instructive, as it tends to remind the ophthalmologists of the heavy responsibility that rests upon them, *i.e.*, to advise *in time* the beneficent palliative operation. It is clear that some pressure from the side of the medical attendants is necessary; for waiting till the vision is diminished, means waiting till irreparable changes have been brought about.

Recent researches on serous meningitis have sufficiently insisted upon the necessity of operating at an early date, as soon as an increasing intracranial pressure has been determined. From a purely neurological standpoint it is not necessary to wait till an exact localisation is possible. The interesting paper of H. Francais[2] seems to show that the French neurologists also have arrived at this conclusion. From an ophthalmological standpoint, along entirely different lines, equally early operation must be urged, the two cases of Francais also illustrate this point very clearly.

Summary.

1. An unexpectedly large percentage of the pupils in a school for blind boys and girls were found to have never suffered from any ocular trouble, but to have been afflicted in early youth or about the time of puberty with some brain disease, accompanied by increased intracranial tension, choked disk and, as a sequel, optic atrophy.[3]

[1] *Loc. cit.*

[2] H. Francais, "Pseudo-tumeur cerebrale et meningite sereuse," *Epilepsia*, Vol. iii., pp. 226, 234.

[3] Muskens, *Deut. Ztschr. f. Nervenheilk., loc. cit.*

2. This high percentage (20 out of 98 pupils) is probably lower than the truth, because all blind children who had given signs of defective mental qualities, fits, or paralysis had been refused admission.[1]

3. In these patients arrested cases of tuberculous, syphilitic and various other new growths may be frequent; the result, however, of the inquiries from the medical attendants of the children (from the general practitioner on the one hand, and the oculists on the other) gives rise to a strong suspicion that more frequently encephalo-meningitis serosa (under which so-called pseudo-tumour and aztek-skull (Turm-schädel) are to be included), and meningitis serosa migrans are at the bottom of the condition.

4. The question, whether this form of blindness can be prevented, has been affirmed in the present state of diagnosis and technique by all recent observers for the last twenty years, therein supporting the statements of Sir Victor Horsley. If a prophylactic proceeding be stated in the same way as with ophthalmia neonatorum, a similar lowering of the number of the blind may be expected.

5. The palliative operation, wherever there is increased intracranial tension, can be compared with iridectomy in glaucoma and with paracentesis in otitis media. They all aim at saving the function of an important organ, and are harmless operations performed at a period in which most effect may be expected. The best period for palliative trephining is as soon as a choked disk of more than two dioptres swelling does not subside spontaneously in a few weeks. Waiting till vision has suffered must be condemned.

6. Pediatrists and ophthalmologists are most concerned in these rules, since after an inquiry it has been found that children are most prone to suffer.

7. It seems advisable that in the forms for admission to institutions for the blind, some questions should be inserted, in view of this cerebral origin of the affliction.

8. Also in the decennial counting of the population, special questions could be inserted regarding the blind citizens, as such an inquiry might elucidate the frequency of this cause of blindness.

[1] Compare Meltzer, *Neurol. Centralbl.*, 1908, p. 562.

Abstracts

ANATOMY.

DEVELOPMENT OF THE ADRENALS IN THE TURTLE. ALBERT (244) KUNTZ, *Amer. Journ. of Anat.*, Vol. 13, No. 1, March 1912, p. 71.

IN this paper Kuntz uses the term chromaffin substance in preference to medullary substance, for only in mammals is a true medulla present. Summary: (1) The anlagen which give rise to the cortical substance of the adrenals arise in embryos of *Thalassochelys caretta* (Loggerhead turtle) as buds of cells which proliferate from the peritoneal epithelium. The chromaffin substance is derived from the anlagen of the prevertebral sympathetic plexuses. These findings agree with those of Poll in embryos of *Emys europæa*, and with those of some of the earlier investigators in other types of vertebrates. (2) The cells which become differentiated into the chromaffin cells, like the majority of the cells which advance peripherally from the cerebro-spinal nervous system, into the anlagen of the sympathetic nervous system, are cells of an indifferent type, viz., the "indifferent" cells of Schaper. (3) The processes involved in the displacement of the "indifferent" cells from the anlagen of the prevertebral sympathetic plexuses toward the adrenals and the differentiation of these cells into chromaffin cells are probably stimulated and controlled by the influence of hormones, which are produced by the cells of the cortical substance. The rôle of hormones in the development of the sympathetic nervous system was suggested by Kuntz first in his paper on turtles (1911), was later adopted by him for fishes, and finally for all vertebrate classes. The reviewer can strongly recommend a study of all the papers of Kuntz on the development of the sympathetic nervous system, for they form the most comprehensive studies in existence on all vertebrate classes ever made by one observer.

LEONARD J. KIDD.

PHYSIOLOGY.

THE EFFECT OF A DIET OF POLISHED RICE ON THE NITROGEN AND PHOSPHORUS OF THE BRAIN. CASIMIR (245) FUNK, *Journ. of Physiol.*, Vol. xliv., Nos. 1 and 2, March 29, 1912, p. 50.

IN polyneuritis of birds produced by a diet of polished rice, the analysis of the brains shows a sensible diminution from the normal of nitrogen and phosphorus content, in a proportion which suggests a breakdown of the lipoids of the brain.

A. NINIAN BRUCE.

RESULTS OF EXTIRPATION OF THE HYPOPHYSIS. (Die Folgen der Exstirpation der Hypophyse.) G. Ascoli und T. Legnani, *Münch. Med. Wchnschr.*, Vol. 59, No. 10, 1912, p. 518.
(246)

The pituitary was removed from a number of young dogs, most of which died within a few days after the operation. A few cases were found, however, where the animal survived the operation for a very considerable period. In such cases, compared to normal controls, the following differences were noticed: sudden inhibition of growth, delay of ossification and dentition, and disturbances of nutrition which generally manifested themselves by a marked increase of the adipose tissue. Maturity was inhibited. Macroscopic and microscopic changes in the spleen, thyroid, thymus, and suprarenals were also found. R. A. Krause.

THE METABOLISM OF THE HYPOPHYSECTOMISED DOG. F. G. Benedict and J. Homans, *Journ. of Med. Research*, Vol. xxv., No. 3, Feb. 1912, p. 409.
(247)

A large number of experiments were carried out upon hypophysectomised dogs, the carbon dioxide production being used as an index to the total metabolism. The same animal was used as a control by a number of experiments before operation. There was a marked fall in the total metabolism after operation. The normal growth of the animal was retarded, any gain of weight being chiefly due to formation of fat. The pulse and respiration rates fell a few days after operation. The body temperature was slightly lowered. Where young animals were used, the infantile characteristics were retained, and the sexual functions did not mature; the latter were very definitely altered even where maturity had been reached. R. A. Krause.

THE ADRENAL GLANDS. R. G. Hoskins, *Cleveland Med. Journ.*, Vol. 11, No. 3, March 1912, p. 180.
(248)

This short paper by a physiologist who has done, and is doing, original work on this subject, gives a good *résumé* of recent researches, especially those of Cannon, the author, and their coworkers. Hoskins here asks two questions: (1) How are the adrenals controlled? (2) Is the relationship between them and the sympathetic nervous system of constant utility, *i.e.*, do the glands exert a constant tonic influence on the system, or is it merely a reserve mechanism for times of special stress? A good short account is given of the means by which the influence of emotion, both of fear and anger, pain (or its physiological equivalent, strong sensory stimulation under urethane anæsthesia), and asphyxia, causes a marked augmentation in the epinephrin content of the blood. Hoskins concludes that "the available data, while

not conclusive, indicate that the assumed tonic influence of the adrenals on the sympathetic system is non-existent, but that during periods of special stress there is an augmented secretion of the glands which does reinforce this system. Through some mechanism, in part probably this augmented sympathetic activity, there is a marked increase in muscular efficiency."

LEONARD J. KIDD.

PSYCHOLOGY.

FEEBLE-MINDEDNESS AND THE MEASUREMENT OF THE
(249) **INTELLIGENCE BY THE METHOD OF BINET AND SIMON.** W. C. SULLIVAN, *Lancet*, March 23, 1912, p. 777.

THE method of Binet and Simon, devised as a mode of gauging the intellectual development of normal children, consists in tabulating the answers to certain test questions, five of which have been devised for each year of age from three onwards, in such a way that the result can be expressed in figures. This gives a conventional scale by means of which the intellectual capacity of different individuals may be compared. For a fuller description of the method this paper and the original description should be consulted. It is, of course, a purely artificial scale, and experience may show that it has to be modified,—still, it is a standard which may be usefully employed to judge whether any particular individual or group of individuals is backward or otherwise.

Dr Sullivan has employed the method to test the intelligence in the mentally defective who are over school age, with the result that the individuals (of ages from 18 to 21) were found to be capable only of answering tests which put them on the intellectual level of children about 9 or 10. Only one attained the level of over 12 years. The paper is one which is well worth study, if only for the description of the method. J. H. HARVEY PIRIE.

PATHOLOGY.

ACCUMULATION OF POLYNUCLEAR LEUCOCYTES ROUND
(250) **GANGLION CELLS IN EPIDEMIC CEREBRO-SPINAL MENINGITIS. A CONTRIBUTION TO THE QUESTION OF THE PERICELLULAR LYMPH-SPACES IN THE BRAIN. (Anhäufung von polynucleären Leukocyten um die Ganglienzellen bei epidemischer Cerebrospinal meningitis. Ein Beitrag zur Frage des pericellulären Lymphräumes im Gehirn.)** O. SITTIG, *Ztschr. f. d. ges. Neurol. u. Psychiat.*, Bd. viii., H. 4, Nov. 28, 1911, S. 14.

THE question of the existence of a lymph space round the ganglion cells is one about which there is considerable diversity

of opinion. Observers have noted the occurrence of cancer cells around ganglion cells. The author has made observations upon the occurrence of leucocytes in a similar position in acute meningitis.

The case more especially investigated was one of acute cerebro-spinal meningitis with encephalitis. No mention is made of the method of fixation. It was in the neighbourhood of a small abscess situated at the junction of the grey and white substance that the most interesting appearances were seen. The more or less degenerated ganglion cells were surrounded by numerous polymorpho-nuclear leucocytes. In some places the ganglion cell had disappeared entirely, its place being occupied by leucocytes. This observation the author considers to be evidence in support of the existence of a lymph space round the ganglion cell. At the same time he admits that similar appearances in acute poliomyelitis have been interpreted by another observer as due to the filling with leucocytes of a space left by degenerating nerve elements. JAMES MILLER.

A CASE OF RETROPERITONEAL GANGLIO-NEUROMA. (Uber (251) **einem Fall von retroperitonealem Ganglioneurom (Neuroma verum gangliosum myelinicum nervi sympathici).)** S. SATO, *Arch. f. klin. Chir.*, Bd. 97, H. 1, 1912, S. 177.

THE condition was found in a woman æt. 31. An abdominal tumour was noticed on examination by a medical man when patient was 15 years old. On account of slow growth the condition did not give trouble until shortly before admission to hospital, when abdominal pain, vomiting and diarrhœa were complained of.

On palpation a tumour the size of a fist was found in the region of the umbilicus. It was hard, rounded, and adherent. Laparotomy was performed and the tumour, which was situated behind the peritoneum, was removed. The patient left the hospital cured three weeks later.

The tumour weighed 76 g. and measured $10 \times 5 \times 2$ cm. It was oval in shape and firm and elastic in consistence. The surface was partly smooth, partly rough with numerous projecting nodules. On section it was greyish white and fasciculated with the general appearance of a fibroma. A few oval and spindle shaped grey areas were scattered through it. Portions of the tumour were fixed in formalin and stained in many different ways.

The tumour was found on microscopic examination to be made up of a felted network of nerve fibres with giant cells here and there scattered through it, presenting the appearances of ganglion cells. Connective tissue elements were few and far between. As regards the nerve fibres, axis cylinders were found surrounded by

myelin sheaths. The ganglion cells were fairly uniformly distributed, although gathered together here and there forming the grey areas seen macroscopically. Nissl bodies were found in most cases in the cell protoplasm.

The author is of the opinion that the tumour was congenital and that it arose from misplaced ganglion cells belonging to the sympathetic system. JAMES MILLER.

HISTOLOGICAL EXAMINATION OF FIVE CASES OF SPINAL TUMOUR. (Cinq cas de tumeurs de la moelle: étude histologique.) JUMENTIÉ and KONONOVA, *Rev. Neurol.*, April 15, 1912, p. 481.

(252)

THREE of the tumours were classified on microscopical examination as fibro-sarcoma; but as they contained myxomatous elements in varying degree, their full description is fibro-myxo-sarcoma. A fourth was a psammomatous endothelioma, while the last was an angiolipoma. S. A. K. WILSON.

CLINICAL NEUROLOGY.

AN ADDRESS ON CASES ILLUSTRATING SOME INTRACRANIAL CONDITIONS OF GENERAL INTEREST. SAMUEL LODGE, *Brit. Med. Journ.*, March 6, 1912, p. 592.

(253)

FIFTEEN cases are here recorded, comprising: extradural abscess over both frontal lobes with pseudo-typhoid symptoms; tic douloureux with complete recovery after extirpation of the Gasserian ganglion; congenital hydrocephalus with recovery after drainage of both lateral ventricles; internal hydrocephalus simulating tumour of the right occipital lobe with recovery after draining the lateral ventricle; cranial nerve involvement suggesting tumour at the cerebello-pontine angle, but no tumour found at operation, partial recovery; tuberculoma of cerebellum; cerebellar tumour, not found at operation; tumour of the fourth ventricle (papilloma); five cases of hyperpituitarism, the first being a cystic tumour of the hypophysis causing bitemporal hemianopsia and primary optic atrophy without marked acromegalic symptoms, the remaining four, however, exhibited both series of symptoms; and two cases of hypopituitarism with Fröhlich's syndrome. A. NINIAN BRUCE.

CASE OF DERMATO-MYOSITIS IN A CHILD, WITH PATHOLOGICAL REPORT. F. E. BATTEN, *Proc. Roy. Soc. of Med.*, Vol. v., Part 4, Feb. 1912, Neurol. Section, p. 103.

(254)

THIS appears to be the first case on record in a child with full pathological examination. The patient was a girl of 9½, and the disease lasted fifteen months, during the greater part of which

she was under observation. The symptoms first came on shortly after removal of tonsils and adenoids, and consisted mainly of periodic attacks of acute swelling of the muscles and redness of the skin with subsequent induration of the skin and muscles after the subsidence of the acute attacks. Careful and very thorough examination gave negative results as regards any affection of the joints, blood, viscera, or nervous system, and also no sign of syphilis, tubercle, *Trichinella spiralis* or any form of organism which could be cultivated on ordinary media. Post-mortem examination also showed the disease to be limited to the skin, subcutaneous tissues, and muscles.

The most striking point about the muscles was that in the superficial portions there was great atrophy of fibres, whilst the deeper portions were practically normal. Those parts of muscles separated from the subcutaneous tissues by a thick tendinous sheath escaped affection, whilst those fibres lying in close contact with the subcutaneous tissues, and along the intermuscular septa were liable to be affected. Perivascular infiltration of the vessels with small round cells was a striking feature, also thickening of the vessel walls or even actual obliteration. There was also infiltration of the muscle fibres with lymphocytes and regular accumulations of these cells or "lymphorrhages" in places.

The cause of the disease is unknown. A toxin of exogenous origin is suggested, and the fact that the child lived in close proximity to horses, suggests the possibility of infection having been conveyed from them. J. H. HARVEY PIRIE.

A CASE OF ACUTE MYELITIS WITH OPTIC NEURITIS (Neuro-myelitis optica). E. F. CLOWES, *Lancet*, March 23, 1912, p. 782.
(255)

A CLINICAL account of the case of a woman with the symptoms of acute myelitis combined with double optic neuritis. The disease commenced with indications of meningitis, then the features of an acute ascending paralysis, and vision was impaired on the second day. The upper limit of hyperæsthesia was an inch below the nipples. On the ninth day the breathing was almost entirely abdominal, but the arms could still be moved quite well. On the fourteenth day dysphagia set in and death occurred while attempting to swallow fluid. No post-mortem examination was allowed.

Dr Frederick Taylor adds some interesting observations on other recorded examples of this disease which appears to be, after all, but the more or less accidental co-existence of optic neuritis and myelitis. There appears to be no satisfactory conclusion as to the nature of the lesion, or whether there is a spread of the disease from one site to the other or a separate attack at the two parts. J. H. HARVEY PIRIE.

DECOMPRESSIVE OPERATIONS FOR FRACTURES OF THE
(256) **BASE OF THE SKULL.** ROBT. L. PAYNE, *Journ. Amer. Med. Assoc.*, Feb. 17, 1912, p. 471.

ACCUMULATION of blood at the base of the brain causes a local and general increase of intracranial tension and death from anæmia of the vital centres; hence subtemporal decompression on one or both sides with gentle elevation of the brain and removal of the accumulated blood followed by drainage is indicated in cases of fracture of the base of the skull associated with high blood pressure.

Lumbar puncture is dangerous because, if too much fluid be removed, the medulla may be sucked into the foramen magnum and the vital centres pressed on. Venesection is contrary to physiological principles, because high blood pressure is Nature's method of combating the anæmia of the brain caused by the external pressure on that organ.

A successful case of decompression for fractured base is reported. R. C. ALEXANDER.

CAVITATION OF THE SPINAL CORD FROM BULBAR COM-
(257) **PRESSION: EXPERIMENTAL INVESTIGATION OF SPINAL CAVITY FORMATION BY COMPRESSION. (Sur un cas de cavité médullaire consécutive à une compression bulbaire chez l'homme: et étude expérimentale des cavités spinales produites par la compression.)** LHERMITTE and BOVERI, *Rev. Neurol.*, March 31, 1912, p. 385.

IN a man of 34 an osseous tumour, growing from the basilar process of the occipital bone, was found to have so compressed the medulla oblongata that it was markedly flattened in an antero-posterior direction. There extended from this level right through the cord to the tenth dorsal segment, a cavity whose walls were in some places less than one millimetre thick. In its lower extent this cavity was independent of the ependymal central canal. It was not in its general appearance such a cavity as is usually found in syringomyelia, lined with gliomatous formation, &c. This being so, it suggested a causal connection between the compression and the cavity formation.

Accordingly, with a view to a solution of the problem by experimentation, the authors performed a laminectomy on four dogs, and introduced an osseous fragment into the spinal canal in such a way as to determine a progressive compression. In one of the four very instructive results were obtained. This animal died on the eighth day. The fragment had been placed opposite the seventh dorsal segment. At this level the cord was acutely compressed, and in the eighth dorsal there were numerous intra-medullary hæmorrhages. But *above* the area of compression,

extending to the third dorsal, situated in the grey matter immediately behind and independent of the central cavity, was a cavity with comparatively regular walls, formed by the necrosis of softened medullary substance. As there were no signs of infection the cavity formation must be regarded as a sequel to a pure myelomalacia. The situation of the cavity corresponded exactly to the position commonly occupied by syringomyelic cavities. The evidence does not allow the authors to conclude further than that compression may produce a profound modification of the circulation in the medullary grey matter, which may, in certain cases, lead to cavity formation. S. A. K. WILSON.

SPINAL DECOMPRESSION. PEARCE BAILEY and CHARLES A. ELSBERG, (258) *Journ. Amer. Med. Assoc.*, March 9, 1912.

SEVEN cases are reported in which exploratory laminectomy with opening of the dura mater was performed. These include: (1) Three cases in which nothing pathological was found within the dura, and in which operation was followed by complete disappearance of all the symptoms. In one case pain of three years' duration was removed; in the second an atypical Brown-Sequard syndrome was recovered from; in the third an unilateral sensori-motor leg paralysis disappeared after operation. (2) One case, in which nothing abnormal was found at operation, showed marked but temporary improvement of symptoms after operation. (3) Three cases in which a tumour was found which could not be, or could only partially be, removed at operation. In these cases pain disappeared, anæsthesia grew less and motor symptoms were alleviated.

It is worthy of note that only in two of the above cases (tumour cases) was there direct evidence of increased intradural pressure, and the term "spinal decompression" is used as a convenient expression, the results from the operation not being entirely analogous to the results of cerebral decompression.

The explanation of the phenomenon is not clear, but a hint is thrown out that vital changes in the blood supply of the spinal cord, or admission of light and air to the cord, may have to do with the beneficial results from operation.

After criticising Horsley's classical paper on "Chronic Spinal Meningitis" and finding in it many illustrations of the good results of spinal decompression the authors touch upon the statistics of exploratory laminectomy and come to the following conclusions:—

1. The free removal of spinous processes and laminæ with opening of the dura mater may have a profound effect on the spinal cord and certain pathological conditions.

2. There are a number of intradural conditions which present symptoms as yet indistinguishable from those of spinal tumour.

3. Even in the absence of increased intradural pressure or of a discoverable lesion, the operation of laminectomy and incision of the dura mater may be of great benefit.

4. For the reasons above stated and on account of its relative safety in experienced hands, exploratory operations should be more often attempted. KELMAN MACDONALD.

BRACHIAL MONOPLEGIA AND FACIAL PARALYSIS ON THE LEFT SIDE: CONJUGATE DEVIATION OF THE EYES TO THE RIGHT. LENOBLE and AUBINEAU, *Rev. Neurol.*, Jan. 30, 1912, p. 65.

(259)

A SYPHILITIC patient, aged 27 years, was admitted to hospital in a serious condition, and died in coma two days later. The clinical symptoms he presented were a brachial monoplegia on the left side, facial paralysis on the left, and paralysis of conjugate deviation of the eyes to the left, the globes being strongly and permanently deviated to the right. The lesion is supposed to have been in the upper pons, catching face and eye fibres, after their separation from the main cortico-spinal path but before they have crossed the mid-line, and implicating also the brachial cortico-spinal fibres. No systematised lesion was found at the post-mortem, but simply a diffuse meningitis with vascular congestion and small cell infiltration. S. A. K. WILSON.

LOCALISED PURPURA OF THE FOREARM OF NERVOUS DISTRIBUTION OCCASIONED BY CONSTRICTION OF THE NERVES AT THE ELBOW IN A TUBERCULOUS SUBJECT. (Purpura localisé de l'avant bras à topographie nerveuse, provoqué par une constriction des nerfs près du coude chez un tuberculeux.) H. GOUGEROT and H. SALIN, *Arch. des mal. du cœur, des vaiss. et du sang*, 1911, iv., p. 86.

(260)

THE patient was a man, aged 22, suffering from pulmonary and intestinal tuberculosis (verified post-mortem) with progressive cachexia and enlarged liver. On the day following the application of too tight a bandage to a tuberculide on the elbow, a purpuric eruption appeared affecting the whole of the forearm with the exception of an area on the inner aspect corresponding to the distribution of the anterior and posterior branches of the internal cutaneous nerve.

The case illustrates (1) the revelation of the latent hæmorrhagic diathesis so frequent in the tuberculous under the influence of an occasional cause such as trauma; (2) the intervention of several factors in the pathogeny of purpura, especially the association of

hepatic and nervous disorders; (3) the influence of disturbance of the peripheral nerves on the appearance of purpura.

J. D. ROLLESTON.

HÆMATEMESIS IN TABES. (Hématémèses tabétiques et fausses
(261) **hématémèses tabétiques.)** M. DALLE, *Thèses de Paris*, 1911-12, No. 195.

DALLE distinguishes a true and a false tabetic hæmatemesis. In the former the hæmatemesis is dark, scanty, infrequent, occurs only at the height of the gastric crises, and in no way adds to the gravity of the prognosis. In the latter the hæmatemesis is abundant, may consist of dark or red, clotted or fluid blood, is of grave prognosis, as, unlike the former, it is due to an organic lesion of the gastric mucosa, and may occur at the onset, in the middle, or at the end of the gastric crises. Under false tabetic hæmorrhage Dalle includes two distinct classes of cases: (1) Hæmatemesis occurring in tabes but not causally connected therewith. (2) Hæmatemesis in diseases simulating tabes.

The thesis contains the histories of twenty-five cases, one of which is original (*Cf. Review*, 1912, x., p. 136).

J. D. ROLLESTON.

TABES IN WOMEN AT THE SALPÊTRIÈRE. (Le tabes feminin
(262) **à la Salpêtrière.)** P. MARIE and C. FOIX, *Rev. Neurol.*, 1911, ii., p. 802.

THE female tabetics at the Salpêtrière like the male patients at the Bicêtre usually attain a fairly advanced age, 60 per cent. having reached or passed their sixtieth year. The date of onset is also about the same in both sexes, and the painful forms of trophic manifestations and blindness are not more frequent in women than in men.

The special gravity of female tabes resides in its paraplegic tendency characterised by considerable diminution of muscular force in the lower limbs and in the frequency of sphincter troubles and club foot.

J. D. ROLLESTON.

THE ONSET OF INHERITED TABES IN ADULT LIFE. (Du
(263) **tabes héréditaire débutant à l'âge adulte.)** E. LONG (of Geneva), *Rev. Neurol.*, 1911, ii., p. 808.

ONLY a few cases are on record. Long relates the following two: 1. Typical and severe tabes in mother. In son at the age of 39 painful phenomena, and objective disturbance of sensibility in region of sacral and lumbar roots, loss of knee-jerks, slight motor

inco-ordination in left leg and foot, spinal lymphocytosis. Advance of the disease after a year and a half of specific treatment.

2. Father, syphilis at 20, tabes at 37; in son gradually progressive disturbance of gait after 25, resulting at 33 in grave motor inco-ordination, disturbance of superficial and deep sensibility, loss of tendon reflexes, Argyll Robertson pupil, transient painful phenomena and bladder troubles, well marked spinal lymphocytosis.

J. D. ROLLESTON.

REMARKS ON SYPHILITIC PSEUDO-TABES WITH THE RECORD OF A CASE. W. B. WARRINGTON, *Quart. Journ. Med.*, 1912, April, p. 371.
(264)

THE writer discusses that group of cases which clinically present much resemblance to tabes and which are characterised pathologically by a leptomeningitis of syphilic nature and also by degenerations in the posterior columns.

He analyses a number of cases in which these conditions are found together and concludes that undoubtedly the two lesions may co-exist as separate pathological processes, whilst in others the posterior column lesions are secondary to the meningitis.

Clinically an important point is that the Argyll-Robertson pupil is often present, so that in doubtful cases this sign cannot negative the presence of a true syphilitic lesion.

The writer discusses the clinical signs and diagnosis and gives an account of a case with a detailed pathological examination.

The figures illustrating this were inadvertently omitted from the paper but will appear in the next number of the journal.

AUTHOR'S ABSTRACT.

PROGRESSIVE MYATROPHY IN TABES DORSALIS. H. H. TOOTH and C. M. HINDS HOWELL, *Proc. Roy. Soc. of Med.*, Vol. v., Part 4, Feb. 1912, Neurol. Section, p. 81.
(265)

THIS is a record of a case of severe tabes dorsalis with an unusual incidence and degree of motor paralysis and atrophy of muscles, with an account of the full examination of the nervous system. Patient, æt. 35, had syphilis about fifteen years previously. The tabetic symptoms lasted in all only about two years. The outstanding motor symptoms were marked ophthalmoplegia externa, weakness of lip muscles, temporals, masseters and tongue, great wasting and paralysis of legs.

The microscopic examination showed slight thickening of the pia-arachnoid of the cord; great diminution in the number of the cells in all the cell groups of the grey matter and changes in those cells still persisting—most of them resembling the cells seen in

cases of progressive muscular atrophy, some, however, being swollen and with chromatolysis. Weigert sections showed typical degeneration in the posterior columns, with groups of endogenous fibres surviving, and also striking destruction of fibres in Clarke's column, and, to a somewhat less extent, in the ventral horn. Both anterior and posterior roots showed marked degeneration, especially the latter. The cerebellar tract seemed unaffected, although the cells of Clarke's column were so greatly reduced in numbers. Several of the cranial nerve nuclei showed changes in the cells similar to those in the cord. Peripheral nerves showed slight Marchi degeneration, evidently of old standing. The cells of the Gasserian and posterior root ganglia were much degenerated and there was a marked proliferation of the endothelial cells of the capsules. The muscle changes were practically identical with those of progressive muscular atrophy.

The lesions in the nerves were slight as compared with those in the cells and are regarded by the writers as secondary to them and similarly with regard to the muscular atrophy. The meningeal and vascular changes were also quite insufficient to account for the cell degeneration. Cell degeneration must be regarded as the essential feature in the case, and although no other cause than a probable action of a syphilitic toxin is suggested the writers are obviously rather chary of accepting this explanation too readily and note the rarity of such an occurrence as compared with the frequency of syphilis and its action on other parts of the nervous system. J. H. HARVEY PIRIE.

THE NEUROSEROLOGICAL FINDINGS IN TABES, GENERAL
(266) **PARESIS, CEREBRO-SPINAL SYPHILIS AND OTHER NERVOUS AND MENTAL DISEASES.** D. M. KAPLAN and LOUIS CASAMAJOR, *Archiv. of Int. Med.*, Feb. 15, 1912, Vol. 9, No. 2, p. 262.

IN this paper the authors have analysed their findings in an examination of 340 spinal fluids and blood sera for the Wassermann reaction, globulin reaction, cell count and the reduction of Fehling's solution. Nervous affections are grouped into types, either positive or negative, according to their serological findings, and a type is constituted by the result of the behaviour of the largest percentage of cases of the disease, a deviation from the majority type not due to treatment being considered atypical. The nervous diseases and psychoses examined which were not caused by syphilis or infective agents gave with one or two exceptions a strict adherence to the negative type of serology, *i.e.*, cell count not exceeding 7 per cm., no excess of globulin, negative Wassermann reaction in the spinal fluid and reduction of Fehling's solution. The positive type in-

cludes general paresis, tabes dorsalis, cerebral syphilis, infective meningitis, tuberculous meningitis, and spinal cord tumours. Some cases in tabes dorsalis, general paresis, and cerebral syphilis belonged to the atypical type, and in a few instances the serological findings were absolutely negative. The author makes an arbitrary subdivision of cerebral syphilis according to the Wassermann reaction in the spinal fluid, and tabes dorsalis is also subdivided according to the presence or absence of the Wassermann reaction in the serum and spinal fluid, and the presence of a hyperlymphocytosis. From their observations they consider that cases of tabes dorsalis which show a hyperlymphocytosis, or which give a positive Wassermann reaction in the blood serum are the two most suitable types for treatment. A point of differential diagnosis between cerebro-spinal syphilis and general paresis which the authors consider more reliable than the spinal fluid Wassermann reaction is the higher cell count of the former. In paresis the cell count usually does not exceed 70 per cm. and they formulate the theory that the lowest cell count in cerebro-spinal syphilis may be the serological transition of this disease to general paresis. There appears to be a definite connection between excess of polymorphs in the spinal fluid and failure to reduce Fehling's solution since with the diminution of the polymorph cells in the fluid, the substance reducing Fehling's solution reappears; this point is of great practical value in the diagnosis of tuberculous meningitis. In order to appreciate the extensive clinical material investigated by Drs Kaplan and Casamajor in this research the paper must be read in the original.

WINIFRED MUIRHEAD.

VON RECKLINGHAUSEN'S DISEASE. VOLUMINOUS NEURO-
(267) **FIBROMA OF THE ORIGIN OF THE ULNAR NERVE. RESECTION OF THE NERVE. RECOVERY WITHOUT DISTURBANCE OF FUNCTION. (Maladie de Recklinghausen. Névro-fibrome volumineux de l'origine du nerf cubital. Resection du nerf. Guérison sans troubles fonctionnels.)** A. CAUCHOIX, *Bull. et mém. Soc. anat. de Paris*, 1911, 6 sér., xiii., p. 675.

THE patient was a woman, aged 21, admitted to hospital in August for an axillary tumour which had first been noticed six months previously. At first it had been absolutely painless, but since June when it began rapidly to increase in size it had been the seat of pain radiating from the axilla to the finger tips. The diagnosis of von Recklinghausen's disease was established by the presence of other tumours and by pigment spots on the face, trunk, and upper limbs, which she had first noticed after the appearance of the axillary tumour. No motor nor sensory paralysis

followed, and the patient was discharged completely cured a fortnight after the operation.

Histological examination showed the tumour to be a neurofibroma without any evidence of the sarcomatous change which might have been expected from the recent rapid growth.

J. D. ROLLESTON.

RECKLINGHAUSEN'S DISEASE WITH PALPEBRAL LOCALISATION. (Maladie de Recklinghausen avec localisation palpébrale.) (268) A. GABRIÉLIDÈS, *Ann. d'oculist.*, 1912, cxlvii., p. 105.

THE patient was a man, aged 50, the subject of generalised molluscous tumours and pigmentation which had first been noticed ten years previously after the fright caused by shipwreck. The intelligence was dull. The palpebral tumour was situated in the right upper lid, causing ptosis, and was the size of a hazel nut. Microscopical examination showed it to be a fibroma without any nerve fibres.

J. D. ROLLESTON.

A CASE OF DIFFUSE NEUROFIBROMATOSIS. (269) J. M. BEATTIE and A. J. HALL, *Poc. Roy. Soc. Med.* (Pathol. Sect.), 1912, v., p. 140.

THE patient was a girl, aged 17, admitted to hospital on 13th October for loss of vision and general weakness. History: quite well until four years ago, when right hemiplegia suddenly developed. Sight failing for two years. One year ago lump noticed on one arm, six months ago lump noticed on the other arm. Restlessness, twitching of limbs, and grimacing for last fortnight.

Condition on admission: quite blind and deaf, mental condition childish. Vertical nystagmus, bilateral choked disc, left facial palsy, paresis of left external rectus. No complete paralysis of any limb, but general muscular weakness and wasting especially in extremities. Oval swelling just above each elbow, many tumours in and about axillæ, and on each side of neck. Pigmented macule on right temple.

Death on 2nd December. Necropsy: extremely diffuse neurofibromatosis involving cerebro-spinal nerve trunks almost universally. All cranial nerves affected, except the first and sixth. In the spinal canal growths were developed about the cervical and lumbar swellings. Microscopical sections showed uniformly some overgrowth of fibrous tissue. Nerve fibres mostly found at one side of tumour or separated by varying thicknesses of fibrous tissue. Sections of median nerve showed degenerative changes. No sarcomatous tissue present anywhere.

J. D. ROLLESTON.

ACUTE POLIOMYELITIS. AN ANALYSIS OF 62 CASES
(270) **OCCURRING IN AND AROUND EDINBURGH IN THE EPIDEMIC OF 1910.** H. Bruce Low, *Proc. Roy. Soc. of Med.*, Vol. v., Part 4, Feb. 1912, Epidemiol. Section, p. 76.

The chief points emphasised by the author from his study of these cases are as follows:—

1. The cases did not present any symptom or group of symptoms in the prodromal period which could be considered as peculiar to the disease.

2. There is practically no evidence to show that any of the cases considered were infected by contact with another patient.

Other points are: (1) The cases bear no relationship to the occupation of the patient or of the parents. (2) Abortive cases were not common. (3) The prodromal period varied from twelve hours to two months. (4) In few cases was any definite cause blamed. (5) The distribution of the paralysis was in the majority bilateral. (6) Five per cent. recovered completely, 14·5 per cent. not at all. (7) The duration of the paralyses which completely recovered varied from three days to six months, but there were parts still improving seven months after the onset of the paralysis. (8) The month in which there were the greatest number of cases was also the hottest month of the year, and that in which there was the highest rainfall. (9) Concomitant symptoms were similar to those of other epidemics. (10) There is practically no evidence that schools were responsible for the spread of the disease. (11) There was no contemporaneous paralysis amongst domestic animals.

J. H. Harvey Pirie.

CERTAIN ÆTIOLOGICAL CONSIDERATIONS ARISING FROM
(271) **OBSERVATIONS OF THE BEHAVIOUR OF POLIOMYELITIS IN DEVON AND CORNWALL, 1911.** R. J. Reece, *Proc. Roy. Soc. of Med.*, Vol. v., Part 4, Feb. 1912, Epidemiol. Section, p. 59.

It is impossible to give anything like a full abstract of the consideration of the 224 cases which form the basis of this paper, and of the report to the Local Government Board, but the writer's summary of the principal points may be referred to.

1. The wide area over which poliomyelitis was prevalent.

2. The apparent increase of prevalence with the hot weather, and its fall after the earth and water temperature reached the maximum.

3. Its exceptional local appearance in intensive form, suggesting acute infectivity of a limited duration or range.

4. The occurrence here and there of groups of cases under

conditions consistent with case to case infection, probably direct, but conceivably through biting insects.

5. Strong suggestion that the healthy carrier may serve directly or indirectly as agent in transferring poliomyelitis to distant and exceptionally isolated dwellings.

6. Indication that poliomyelitis may be represented locally, almost entirely by cases of the "abortive" type, and that abortive cases may on occasion be highly infectious.

J. H. HARVEY PIRIE.

THE CIRCULATION OF THE CEREBRO-SPINAL FLUID, AND (272) ITS BEARING ON THE PATHOGENESIS OF POLIOMYELITIC DISEASE. KRAMER, *New York Med. Journ.*, March 16, 1912.

THE author studied the circulation of the cerebro-spinal fluid by means of injections of methylene blue in dogs, the animals being killed within a few hours after the injections. He found that—

1. The subarachnoid space is present in the sulci of the cerebrum, but does not exist between the convolutions and the dura mater.

2. In the posterior fossa the subarachnoid space fills the interval between dura mater and cerebellum, and is continued for some distance into the nerve sheaths.

3. The fluid circulates from the posterior fossa down the outside of the cord, and returns largely by the central canal of the cord, the direction of flow in the latter being always upwards.

He considers that the patency of the central canal in children explains the special incidence of poliomyelitis on the meninges and grey matter of the cord. J. GODWIN GREENFIELD.

CROSSED CEREBELLAR ATROPHY IN THE ADULT. (L'atrophie (273) croisée du cervelet chez l'adulte.) ANDRÉ THOMAS and KONONOVA, *Rev. Neurol.*, March 15, 1912, p. 321.

IN four cases of old standing hemiplegia the authors found a considerable degree of crossed cerebellar atrophy, involving the opposite hemisphere only, and not implicating the vermis. The cerebellar cortex, white matter, and central grey nuclei were all involved. As a rule the anterior and posterior quadrilateral lobes were chiefly involved, although all parts were to some degree atrophied. The three layers of the cortex were implicated; in one case the loss of Purkinje cells was considerable (the hemi-

plegia in this instance was of forty years' duration). The subcortical white matter was reduced in amount, but did not show any appreciable degeneration by Pal's method. The nucleus dentatus was notably atrophic; the roof nucleus and nucleus globosus were not changed. The middle and superior cerebellar peduncles were atrophic, the former from the dentate to the red nucleus, and the latter throughout its course. There was slight atrophy of the inferior cerebellar peduncle as far as to the crossed bulbar olive. The atrophy of the superior cerebellar peduncle was the consequence of thalamic involvement; of the middle peduncle, the result of changes in the pontine nuclei from the homolateral cerebral lesion. The mechanism of the cerebellar atrophy may be expressed as follows: Atrophy of the cerebellar cortex from changes in the middle cerebellar peduncle; atrophy of the cerebellar nuclei from changes in the superior cerebellar peduncle secondary to thalamic involvement; atrophy of the restiform body from secondary atrophy of the formatio reticularis and inferior olive. The first and third of these constitute a transneural (Wallerian) degeneration, the second is a retrograde degeneration.

It is important to note that the vermis (connected mainly with the cord and bulb) is unaltered. According to Edinger, the vermis and flocculus constitute the paleocerebellum, the lateral lobes the neocerebellum. The predominance of the atrophy on the quadrilateral lobe is significant, inasmuch as that lobe only reaches its full development in man and the apes.

S. A. K. WILSON.

TRANSIENT PSEUDO-BULBAR PARALYSIS OF PONTINE ORIGIN IN A CHILD, &c. (Paralysie pseudo-bulbaire transitoire d'origine protubérantielle: parésie des quatre membres: chez une fillette atteinte d'endocardite mitrale.) HALIPRÉ, *Rev. Neurol.*, Feb. 29, 1912, p. 235.

(274)

IN a child of 13, suffering from mitral endocarditis, a sudden ictus was followed by paresis of all four limbs and paralysis of tongue, lips, and larynx, with paralysis of the left face of peripheral type. After a fortnight the pseudo-bulbar symptoms improved, although the paresis of the limbs remained. At the necropsy, some four months later, there was found an area of softening in the upper part of the pons, on the left side, due to obliteration of two arterioles coming off the main basilar trunk (transverse pontine arterioles). It is curious that the paresis was more marked in the left limb than in the right, although there was a normal decussation of the pyramidal tracts.

S. A. K. WILSON.

DIFFERENTIAL DIAGNOSIS BETWEEN ACUTE HYDROCEPHALUS (WITHOUT ENLARGEMENT OF HEAD) AND CEREBRAL TUMOUR BY MEANS OF THE X-RAYS. (Diagnostic différentiel entre l'hydrocéphalie aiguë sans augmentation de volume de la tête et des tumeurs cérébrales au moyen des rayons de Roentgen.) BERTOLOTTI, *Rev. Neurol.*, Jan. 30, 1912, p. 68.

(275)

BERTOLOTTI (and Spiller, *Review of Neurology and Psychiatry*, Jan. 1911) have shown independently that in cases of acute internal hydrocephalus where the head is not misshapen the inner table of the skull atrophies under pressure, in such a fashion as sometimes to provide an irregular pattern of the convolutions. The change can readily be detected in the X-ray picture; an excellent example is published by Bertolotti. S. A. K. WILSON.

LITTLE'S DISEASE. (La Maladie de Little.) P. LONDE, *Rev. Neurol.*, Jan. 15, 1912, p. 8.

(276)

THE essential symptom-complex of Little's disease is bilateral disturbance of motor function, consisting in bilateral impairment of volitional movement and bilateral contracture: the former occurs at the outset of the disease, and continues; the latter is variable and capable of regression. Corresponding to the clinical symptoms is a bilateral primary lesion, either (1) meningeal hæmorrhage, (2) meningitis or encephalitis, or (3) agenesis. The disease is essentially congenital, a point on which Londe lays great stress. Infantile encephalopathies of the first two or three years of life ought to be excluded, as they are not in any sense congenital. A pure spinal form of the disease may occur, as well as a cerebral and a cerebro-spinal form. Any and every case of idiocy, whether spastic or not, or epileptic or not, should not be confused with, or held to be identical with, Little's disease. It is true Little's disease may be complicated by mental symptoms. A distinction can be drawn between Little's disease and bilateral infantile spastic hemiplegia; in the former the chief incidence is in the lower extremities: there is little actual paresis or paralysis, although the rigidity is considerable: epileptiform convulsions and mental impairment are very infrequent. The latter is rarely congenital: the upper limb is more affected than the lower: there is definite paralysis, while muscular atrophy and shortening of the limbs are often seen: epilepsy and mental defect are common. Little's disease must also be distinguished from familial spastic paraplegia. Londe thinks that it presents close analogies with the condition known as "athétose double": probably the same sort of cause is at work in the production of the latter as

in the former. The pathological physiology of the involuntary movements often found in Little's disease, and of the rigidity, is sketched by the author on the basis of defect of afferent cerebellar influence. S. A. K. WILSON.

BILATERAL CONGENITAL MICROMELY OF THE HUMERI, AND ITS RELATION TO ACHONDROPLASIA. (La micromélie humérale bilatérale congénitale et ses relations avec l'achondroplasie.) H. S. STANNUS and S. A. K. WILSON, *Nouv. Icon. de la Salpêt.*, Nov.-Dec. 1911, p. 463.
(277)

THE authors describe the not infrequent occurrence, among certain native tribes in Nyasaland, of a congenital shortening of the humeri, the individuals affected presenting no other pathological condition (with the exception of occasional accepted congenital anomalies) and in particular no other signs of achondroplasia (except in one case). A discussion of the interpretation of the clinical facts, and of their bearing on the question of achondroplasia, is given in some detail. AUTHORS' ABSTRACT.

NERVE ROOT IRRITATION IN LUMBAR PUNCTURE. Report of a Case. FRANCIS M. RACKMANN and E. W. TAYLOR, *Boston Med. and Surg. Journ.*, March 7, 1912.
(278)

THIS is the record of a case in which, in the course of lumbar puncture, a sharp vigorous contraction of the patient's right glutei and posterior thigh muscles took place when the point of the needle was in the canal. This contraction was associated with intense pain in the right lower limb, and was described by the patient as "like a current of high voltage passing down the leg." These systems passed off when the needle was withdrawn, but the patient suffered from considerable shock. Intense headache and violent pains in the body developed; these remained for about sixty hours, preventing the patient from sitting or lying down in comfort. For ten days dull pain remained in the right lower limb, but later complete recovery took place. The authors explain the above phenomena as the result of stimulation of one or more sacral nerve roots while the needle was in the canal.

A. FERGUS HEWAT.

RAYNAUD'S DISEASE. (Sur la maladie de Raynaud.) VARIOT, *Gaz. d. Hôp.*, 1912, lxxxv., p. 257.
(279)

VARIOT records a case in a deaf and dumb boy, aged 3½ years, following broncho-pneumonia. The nostrils and external ears were first attacked by gangrene, and a fortnight later the hands, lower part of forearms, toes of both feet and right metatarsus were similarly affected. J. D. ROLLESTON.

THYRO-TESTICULO-SUPRARENAL INSUFFICIENCY. (Insuffis-
(280) **ance pluriglandulaire interne, thyro-testiculo-surrénale; nouvelle observation clinique et anatomique.)** GOUGEROT and GY, *Nouv. Icon. de la Salpêt.*, Nov.-Dec. 1911, p. 449.

A PATIENT of 52 had always been a healthy and normally developed man till 1904, when he suffered from an acute illness of undetermined nature. When convalescent from this illness a progressive and rapid asthenia developed, the skin took on a yellowish tint, the moustache, beard, pubic, and axillary hair began to fall out. On palpation the thyroid gland appeared atrophied, but while there were symptoms of hypothyroidism, there was no true myxœdema. At the same time the genital organs became atrophic, and the symptoms of hyporchidism appeared, but there was no infantilism. Somewhat later pigmentation of the skin developed and the pulse tension fell, indicating alteration in function of the suprarenals. The patient died in December 1908. Post-mortem it was found that the thyroid was sclerosed and atrophic, the testicles were atrophied, the suprarenals were sclerosed and slightly atrophic, the pituitary was fibrous and reduced in size, the thymus was atrophied. The pancreas also was sclerosed.

S. A. K. WILSON.

SUPRARENAL ENCEPHALOPATHY. ITS PRINCIPAL CLINICAL
(281) **FORMS. (L'Encéphalopathie surrénale. Ses principales formes cliniques.)** E. SERGENT, *Jour. de méd. et de chir. prat.*, 1911, lxxxii., p. 849.

SERGENT describes two varieties of suprarenal encephalopathy, a slow or subacute, and an acute. The former is characterised by the presence of psychasthenic or neurasthenic manifestations associated with the usual symptoms of suprarenal insufficiency. Acute suprarenal encephalopathy is subdivided by the writer into convulsive, delirious, apoplectic, comatose, and meningitic forms. Cases are recorded to illustrate the benefit to be derived from suprarenal opotherapy. J. D. ROLLESTON.

LATE INFANTILISM IN THE ADULT (Retrograde Sexual Infan-
(282) **tilism). (Infantilisme tardif de l'adulte (Infantilisme sexuel "de retour").)** L. LÉVI, *Paris Méd.*, 1911-12, i., p. 364.

THE patient was a man, aged 56, who had been normal until the age of 36, when he had an attack of double pneumonia. Impotence then supervened. The hair of the head, beard, axillæ, pubis, and limbs in great part disappeared, and he developed polydipsia and polyuria without glycosuria. The symptoms are attributed to polyglandular insufficiency in which the testes, thyroid, and hypophysis are involved (*cf. Review*, 1911, ix., p. 515). J. D. ROLLESTON.

RETROGRADE INFANTILISM. (L'infantilisme régressif ou tardif.)
(283) CORDIER and REBATTU, *Nouv. Icon. de la Salpêt.*, Nov.-Dec. 1911, p. 405.

BY regressive or retrograde infantilism (infantilism of the type described by Gandy) is meant that form in which the stigmata of infantilism make their appearance in adult life, when the individual has already reached a normal sexual development. Some observers are inclined to deny the existence of the type altogether, regarding the signs as simply those of a form of myxœdema. According to the authors of this paper, who base their conclusions on an analysis of twenty recorded cases, a definite and characteristic morbid entity does exist, whose features are as follows:—

The individual must have reached full physical, sexual, moral and intellectual development previous to the onset of the symptoms. In the majority of cases the retrogression commences between the ages of 20 and 30. As a rule the earliest symptom is the disappearance of sexual power, succeeded by falling out of the hair—pubic, axillary, and facial. Occasionally the first symptoms are those of thyroid insufficiency. There may be a period of five or six years during which these earliest symptoms remain the only indication of a pathological change. In a fully developed case the individual looks much younger than he really is: sometimes he has a myxœdematoid appearance, sometimes not. The skin is pale and smooth: sometimes it is dry and very finely wrinkled: occasionally there is a general subcutaneous puffiness such as is associated with thyroid deficiency. Pubic, axillary, and facial hair may disappear, but there is no calvities. The external genitalia are always atrophic, and the sexual functions are always in abeyance: in female cases there is also retrogressive atrophy of the uterus. The general behaviour of the patient may be juvenile, if not childish, but this is not noticeable in all cases: sometimes the voice becomes more shrill, but if the symptoms of the condition make their appearance after the age of 30, this is not likely to be marked.

The thyroid gland is not infrequently found to be atrophied: thyroid insufficiency symptoms are found in most cases, but in 75 per cent. they are incomplete, and are sometimes very slight. Symptoms attributable to defect in function of other ductless glands (suprarenal, pituitary) are rarely met with.

The pathogeny of the condition suggests problems that are difficult to elucidate; the authors devote a good deal of space to their consideration. They do not believe the condition is of necessity pluriglandular in origin. They think two varieties may be distinguished, one in which there is a myxœdematous element in the clinical appearances, this group being of thyroid origin, and

another in which defect of testicular secretion is the cause of the symptoms; but dysthyroidism cannot of itself produce all the symptoms; a secondary dysorchidism is necessary. When the latter is primary, there may or may not be a secondary dysthyroidism. S. A. K. WILSON.

THE EFFECT OF FAT AND OF CARBOHYDRATE DIETS ON
(284) **THE EXCRETION OF CREATIN IN CASES OF RETARDED DEVELOPMENT.** F. H. M'CRUDDEN, *Journ. Exp. Med.*, Vol. XV., No. 5, May 1912, p. 457.

IN two cases of infantilism of the type of Herter, in one case of achondroplasia, and in one case of cretinism, creatin was constantly present in the urine, and was increased in amount when the ingestion of carbohydrates was increased. A. NINIAN BRUCE.

EXPERIMENTAL STUDIES ON THE ADMINISTRATION OF
(285) **SALVARSAN BY MOUTH TO ANIMALS AND MAN.** J. A. KOLMER and J. F. SCHAMBERG, *Journ. Exp. Med.*, Vol. XV., No. 5, May 1912, p. 498.

SALVARSAN can be given by mouth up to 0·6 of a gram to human subjects without producing toxic symptoms, except in some cases a little vomiting and diarrhœa. Thus administered it exerts a therapeutic influence, but this influence is too feeble to warrant its use by this route.

After the oral administration of salvarsan, arsenic is found in the bile and urine at the end of twenty-four hours, but it disappears by the end of seventy-two hours.

After the oral and intravenous injection of salvarsan in rabbits in doses approximating those employed in human subjects, no appreciable microscopic changes could be found in the important viscera within ninety-six hours. A. NINIAN BRUCE.

MENINGEAL REACTIONS IN SYPHILIS. (Des réactions méningées
(286) **observées au cours de la syphilis.)** L. C. JOLIVET, *Thèses de Paris*, 1911-12, No. 161.

JOLIVET discusses the meningeal reactions observed in acquired and hereditary syphilis. The meningeal reactions of acquired syphilis comprise secondary syphilitic meningitis, chronic meningitis resulting in tabes, general paralysis, hemiplegia and auditory neuritis (*v. Review*, 1909, vii., p. 30), and parasyphilis. Although fatal cases have been recorded (*ibid.*, 1908, vi., p. 419), most cases of acute syphilitic meningitis yield to intensive treatment, but sequelæ are left behind, as shown by the persistence of lymphocy-

tosis, exaggeration of reflexes, Argyll Robertson pupil and ocular palsies (*ibid.*, 1907, v., p. 901; 1908, vi., pp. 174 and 290).

Jolivet suggests that the persistent crying characteristic of syphilitic infants and attributed by Sisto and Comby to osteocopic pains is really due to a meningeal reaction, the frequency of which in hereditary syphilis has been shown by Ravaut (*ibid.*, 1907, v., p. 718). As treatment the injection of soluble salts is recommended (*ibid.*, 1909, vii., p. 682). Rapid improvement may follow the use of salvarsan (*ibid.*, 1911, ix., p. 269), but this drug must be used with caution owing to its tendency to provoke lymphocytosis and arsenical neuritis. J. D. ROLLESTON.

EXPERIENCES IN SALVARSAN TREATMENT OF SYPHILITIC
(287) **AND METASYPHILITIC DISEASES OF THE NERVOUS SYSTEM.** (**Erfahrungen über Salvarsanbehandlung syphilitischer und metasyphilitischer Erkrankungen des Nervensystems.**) O. L. KLIENEBERGER, *Berl. klin. Wchnschr.*, 1912, xlix., p. 443.

A RECORD of 87 cases treated during the last eighteen months in Bonhoeffer's clinique at Breslau. 194 injections were given, the first 21 of which were intramuscular, and the rest intravenous. The doses ranged from 0·2-0·4 gm. 31 were cases of general paralysis, 16 of tabes, 29 of cerebro-spinal syphilis, and 11 were doubtful cases.

Klieneberger's conclusions are as follows: salvarsan has no influence on general paralysis and hardly any on tabes. The results in cerebro-spinal syphilis were on the whole good, and compare favourably with those obtained by other methods of treatment.

Both in tabes and in cerebro-spinal syphilis better results were obtained by the combination of salvarsan and mercury than by using either of these drugs separately. J. D. ROLLESTON.

SUBCUTANEOUS INJECTIONS OF SALVARSAN IN GENERAL
(288) **PARESIS.** E. H. TROWBRIDGE, *Journ. Amer. Med. Assoc.*, March 2, 1912.

EIGHT cases of general paresis were chosen, which showed as near as possible the earliest symptoms of mental and physical deterioration. Salvarsan, 0·6 g., was injected subcutaneously once in seven cases and twice in the eighth case.

Results obtained are far from encouraging any hope for benefit in this disease by the subcutaneous method of administration of salvarsan. The treatment seems to have a tendency to aggravate the symptoms and hasten the ultimate end. To dispense with salvarsan as a mode of treatment in general paresis will give the patient a longer lease of life. KELMAN MACDONALD.

(289) **RELIABILITY OF THE RESULTS OBTAINED BY THE WASSERMANN TESTS ON SERUM AND CEREBRO-SPINAL FLUIDS OBTAINED POST-MORTEM.** J. P. CANDLER and SYDNEY A. MANN, *Brit. Med. Journ.*, March 9, 1911, p. 557.

THE technique adopted was the original Wassermann method as modified by Candler. The bodies after death were placed in a cold chamber, and the autopsy was usually performed within twenty-four hours; the sera and spinal fluids were removed, and the reaction, as a rule, tested within a day after the specimen was obtained. The serum was inactivated at once, and 0·5 per cent. phenol also added to the spinal fluid to obviate the tendency to decomposition. A total of 112 spinal fluids and 92 serums were examined. Twenty-five spinal fluids from general paresis gave a positive reaction, and in two a negative result was obtained, which in one case could be accounted for by the decomposition of the fluid, and in the other the fluid was purulent from streptococcal meningitis; both fluids were positive during life. In 85 fluids of psychoses other than paresis the reaction was negative. Twenty serums from cases of paresis were examined, 19 gave a positive reaction, and 1 a negative result, but the fluid in this case was decomposed. Of cases other than paresis 72 serums were examined, and in 10 of these (14 per cent.) a positive Wassermann reaction was obtained; four of the bodies, however, showed undoubted signs of syphilis, leaving thus 6 positive sera (8·3 per cent.) where no obvious signs of syphilis were found. The authors have found that serums and spinal fluids obtained post-mortem, which are sterile and decomposing, if inactivated and phenolised at once, will give reliable results, and retain their deviating powers for some months. Decomposition and microbic infection can alter a positive reaction into a negative one and *vice versa*. WINIFRED MUIRHEAD.

(290) **DEMONSTRATION OF THE INDEPENDENCE OF THE LEFT THIRD FRONTAL CONVOLUTION AND THE CENTRES FOR SPEECH. (Démonstration anatomique de l'indépendance de la troisième circonvolution frontale gauche des centres du langage articulé.)** RÉNE SAND, *Semaine Méd.*, février 7, 1912.

IN the first part of his paper, the author reviews the cases from the literature which show the possibility of destruction of the left third frontal convolution without resulting aphasia, and discusses very briefly the attempts that have been made to reconcile this possibility with the classical theory of aphasia.

In the second part of the paper, he publishes in detail a new case of right hemiplegia of two months' duration in a right-handed man, and without any aphasia. The post-mortem findings (several

sections from which are shown in the text) proved that there was a very large area of recent softening in the left cerebral hemisphere involving the posterior part of the frontal lobe and anterior part of the parietal, the insula and the greater part of the white matter between the convexity and the central masses of grey matter. Besides the one large main area, there were several small areas of softening, but, except for three little dots of softening, the basal ganglia were intact.

The author refrains from drawing any constructive general conclusion from this one case, merely mentioning, in passing, that as the lenticular nucleus was mainly intact, the case would lend some support to that part of Professor Marie's theory which would localise a speech centre, not in Broca's area, but in the region of the lenticular nucleus. P. W. SAUNDERS.

ON THE PRESENCE OF THE TRUE MENINGOCOCCUS OF
(291) **WEICHSELBAUM ON THE HUMAN CONJUNCTIVA.** VERDERAME, *Klin. Monatsbl. f. Augenheilk*, Feb. 1912, S. 155.

THE author found this micro-organism in the conjunctival sac of a presbyope who had a slight conjunctivitis. The patient was perfectly healthy otherwise, and gave no history of illness.

In a smear preparation the cocci appeared almost all extracellular, and after isolation they proved only slightly pathogenic for the conjunctiva of the mouse and the guinea pig. The identity of the cocci was fully demonstrated by an exhaustive series of cultures and tests. The paper contains a full discussion of the literature of the subject and numerous references.

H. M. TRAQUAIR.

A REMARKABLE CASE OF PARALYSIS OF THE INFERIOR
(292) **OBLIQUE MUSCLE.** NOBUO INOUYE, *Klin. Monatsbl. f. Augenheilk*, Feb. 1912, S. 218.

THIS extremely rare condition occurred in a woman of 27 years, in connection with empyæma of the left maxillary antrum together with rheumatic polyarthritis.

The patient's head was turned to the left. On looking straight forwards the right eye was depressed, less on looking to the right, and more on looking to the left. Diplopia was present, the image of the right eye being vertically above that of the left, the separation being greatest on looking to the left, and least on looking to the right, but diminishing either on looking upwards or downwards. There was rotation outwards of the image of the right eye, most on looking to the right, and least on looking to

the left. No distinct difference could be detected between the primary and secondary deviation. A chart of the fields of fixation shows a small deficiency in the upper inner corner of the field of the right eye.

The interest of the case lay in the diagnosis. The symptoms might be due to a paresis of the left rectus inferior or of the right obliquus inferior. The absence of increase in the vertical separation of the images on looking up or down tells against involvement of any of the vertical motors of the eyes, and in these circumstances the diagnostic value of rotation of the images is depreciated.

The solution was arrived at by the method of Bielschowsky, which depends on the fact that on bending the head to the right the left-tortor (Linksroller) muscles come into action (l. inf. oblique and l. inf. rectus and r. sup. oblique and r. sup. rectus), and on bending the head to the left the corresponding right-tortors (Rechts-roller) contract by reflex stimulation from the labyrinth in the endeavour to keep the vertical axes of the eyes vertical.

In this case bending the patient's head to the right reduced the vertical separation of the images to a minimum, and to the left increased it to a maximum. The indications were in this way definitely concentrated upon the right inferior oblique.

The peculiarity in the behaviour of the double images and the depression of the right eye were attributed to the fact that the paresis was several weeks old when first examined so that a spastic condition of the right superior oblique had occurred. After considering the possibilities the author suggests as the cause of the condition in this case the local action of toxins produced by the acute rheumatism. H. M. TRAQUAIR.

AMAUROTIC FAMILY IDIOCY. RICHARD M. SMITH, *Boston Med.* (293) *and Surg. Journ.*, March 7, 1912.

THE author commences the article with a brief historical sketch of the literature of the disease. Two typical cases occurring in Hebrew children are then concisely described. In one case the symptoms began after the removal of adenoids, the child later developing otitis media with abscess formation. In the other case symptoms seemed to date from the development of an abscess in the neck. Both cases showed marked excitability and irritability of the nervous system, alternating spastic and flaccid paralysis, typical changes in the fundi, nystagmus, gurgling in the throat, and the usual mental deficiency passing on to idiocy. No autopsy was secured in either case, but the author concludes by briefly describing the distinctive pathological findings which occur in such cases. A. FERGUS HEWAT.

TWO CASES OF AMAUROTIC IDIOCY, OR TAY-SACHS DISEASE.
(294) J. TURNER, *Proc. Roy. Soc. of Med.*, Vol. v., Part 4, Feb. 1912, Pathol. Section, p. 117.

AN important point about one of these cases, No. 2, is that it occurred in a child not of Jewish extraction, and seems to be the first occurrence recorded of a case of this nature. Both cases were beyond the limit generally assigned to the disease, one dying at 14, the other at 5. In both there were features suggestive of syphilis, so that that disease cannot with certainty be ruled out as a factor in the causation; in neither was there any evidence of the disease affecting more than the one member of the family.

The histological features do not present any great difference from those generally regarded as pathognomonic, but it may be noted that the writer regards the mesh-like fragments seen on the swollen nerve cells and their dendrites as a Golgi net enveloping the cell-body and derived from mesoglia cells, and not, as Mott describes them, as intracellular structures. He also thinks that increase of mesoglia tissue is practically a constant, if not an essential, feature of the disease. J. H. HARVEY PIRIE.

THE OCCUPATIONAL NEUROSES. CHARLES L. DANA, *Med. Record*, March 9, 1912.
(295)

DANA groups the forms of trouble in manual workers, due to the neuromuscular work itself, under the four following headings:—

1. Occupational pains and symptomatic cramps.
2. Occupational neuritis and atrophy.
3. The acroparesthesias.
4. The true occupational or professional cramps.

These four types are not always sharply distinguishable, and two or more may co-exist. Details of the various types and the forms of occupation are given in about one hundred consecutive cases of occupational neuroses. In the higher class of skilled labour the affection is most frequently found among writers, telegraphists, stenographers, musicians and artists, while among the relatively unskilled workers, pressers, ironers, and tailors suffer most from these occupational diseases.

Little is said in this paper about the true occupational cramps.

In discussing the prevention of these occupational neuroses it is suggested that suitable articles on "industrial efficiency" might be written, such catching titles as "Why have crippled hands?" being used.

Dana pays a neat tribute to the delicacy and value of the hand as an instrument of education as well as of labour and precision.

KELMAN MACDONALD.

THE CURABILITY OF IDIOPATHIC EPILEPSY, WITH REPORT
(296) **OF TWENTY-NINE CASES.** L. PIERCE CLARK, *Arch. of Int. Med.*, Jan. 1912.

THIS paper embodies work done over a considerable period by the author at the Craig Colony for Epileptics, Sonyea, New York. It is a plea for the so-called hygienic method of treatment, including attention to such details as diet, occupation, recreation, and mental training, as opposed to the sedative treatment by means of bromides. Not that bromides have no place in the treatment of epilepsy, but the author's contention is that they have been greatly overdone, and that their abuse has served to obscure the clinical picture. Their use is allowable (1) as a therapeutic means of determining the severity of the disease, and (2) as adjuvants after all discoverable causes have been set right. Epilepsy is not merely a matter of fits, the fits being only an incident in the disease, and rational treatment should not concern itself solely with such incidents. Full details of the hygienic method of treatment are given, together with some interesting facts concerning urinalysis in epileptics. At the end of the paper there is a report of a series of cases treated at the Craig Colony by the methods advocated by the author, and the results certainly appear to have been very satisfactory. W. BOYD.

CONTRIBUTIONS TO THE NEUROLOGY OF THE CHILD—
(297) **I. CONVULSIVE TENDENCIES DURING AND AFTER ENCEPHALITIS IN CHILDREN.** W. P. LUCAS and E. C. SOUTHARD, *Boston Med. and Surg. Journ.*, Feb. 29, 1912.

THE authors of this article claim that there should be a much closer co-operation between hospitals for acute diseases of the nervous system in children and those for chronic diseases. They analyse 12 cases of encephalitis in children with special reference to immediate and remote results. They realise there is still much difficulty in making an accurate diagnosis in many cases, and feel that their results should only be considered as a beginning for further more accurate observations. Two cases are reported in full, and all are arranged in tabular form.

Their main conclusions are as follows:—

1. The cases fall into three groups:—

"(*a*) Death during acute attack—2 cases.
"(*b*) Recovery from acute attack, with subsequent epilepsy and mental deficiency and death after twenty-one months—1 case.

"(*c*) Recovery from acute attack, with residual symptoms—5 cases; 2 normal except for strabismus and possible slight mental change; 2 epileptic and mentally defective."

2. 7 of the 12 cases showed convulsions during the acute attack, and 2 developed epilepsy, the fits coming on a short interval after the acute attack. FERGUS HEWAT.

RELATIONSHIP OF DRUG ADDICTIONS, PARTICULARLY
(298) **ALCOHOLISM, TO NERVOUS AND MENTAL DISEASES.**
C. C. WHOLEY, *Journ. of Amer. Med. Assoc.*, Vol. lviii., No. 5, Feb. 3, 1912, p. 322.

DRUG addictions are frequently associated with lesions of the cerebro-spinal system as cause or effect. The ætiology behind the addiction is often obscure. Apart from artificially induced cases, most cases of drug habit occur on neuropathic soil. It is probable that alcoholism in the ancestry implants in the offspring a constitution of less resisting power, and so fitted for the development of neuroses, which may in turn be the basis of drug addiction. Further, we cannot always ascribe a neurotic constitution to heredity, even when the ancestry is such as to point to that conclusion, for the children of those addicted to alcohol and other drugs are often insufficiently nourished, and have an unsuitable environment in childhood. The widespread use of opium-containing and other soothing syrups during infancy may be an important factor in evolving the unstable and unfit.

Consider alcohol as the most conspicuous example of drug addiction, firstly as a cause, and secondly as an effect. *A.* As a cause it can produce: (1) Affections of the peripheral nerves of all degrees from slight paræsthesia up to complete paralysis. (2) Lesions of the cranial nerves with or without general neuritis. (3) Cortical involvement. (4) Cortical and peripheral involvement as in Korsakow's psychosis and alcoholic pseudo-paralysis. (5) Effects chiefly in the cord giving rise to pseudo-tabes. (6) Involvement of the higher cerebral centres. *B.* As an effect the various gradations cannot be so definitely represented. It may be associated with various neuroses and psychoses. One notes specially cyclothymia, an emotional disorder expressing itself in periods of depression and periods of excitation, between which the individual may appear normal. The alcohol or other drug is resorted to during the period of depression as a solace, and during that of exuberance as an outlet. It is important in this connection not to confuse the terms "periodic drunkenness" and "dipsomania," proper, the latter being really a rare condition, and lying in the realm of true insanity. Alcoholism may also be

the result of involutionary processes. Drug addiction, particularly alcoholism, is relatively frequent in the early stages of dementia præcox, but not as the result of a crave for narcotics. Again it is found in hypomania and in the deteriorating processes of general paresis. Hoch has laid emphasis on the fact that alcohol is an important cause in the production of brain diseases in syphilitic subjects. In many conditions drug addictions play the combined part of cause and effect, and can obscure the symptom-complex of diseases generally. It is specially important to bear in mind that some form of perverted metabolism or toxic secretion may be the exciting cause of drug addictions.

A. HILL BUCHAN.

PSYCHIATRY.

ANATOMO-CLINICAL STUDY OF PRESBYOPHRENIA. (Étude
(299) **anatomo-clinique de la presbyophrénie.)** MARCHAND and NOUËT, *L'Encéphale*, Feb. 10, 1912, p. 151.

THE exact nature and nosological position of the presbyophrenia of Kahlbaum and Wernicke is still undetermined. Some suppose it constitutes an entity by itself, others that it is simply a variety of senile dementia. The pathological basis on which it is supposed to rest is a vexed question. The plaques of Fischer and others may or may not have some connection with the disease: at present the weight of opinion is against any causative association between them and the clinical phenomena. The authors report three cases, with the results of a post-mortem examination in each. Clinically, the symptoms were amnesia of fixation and evocation, fabulation, disorientation, illusions of false recollection. No true mental confusion was present, but a state of progressive dementia occurred in all three. No indication of any polyneuritic affection could be detected. Pathologically the changes were simply those of senile dementia. No characteristic or special finding was obtained. The brain was atrophied, specially in the frontal lobes; atheroma was present in two of the cases, and in one of them subcortical lacunes of disintegration. The microscopical changes were such as are met with in any case of senile dementia. The authors conclude that presbyophrenia should be considered merely a variety of the latter condition. S. A. K. WILSON.

PATHOGENY OF PRESBYOPHRENIA. (Pathogénie de la pres-
(300) **byophrénie: presbyophrénie et syndrome occipital.)** DIDE and GASSIOT, *Rev. Neurol.*, Jan. 15, 1912, p. 5.

PRESBYOPHRENIA is characterised by continuous amnesia, allopsychic, but not autopsychic, disorientation, fabulation, and illusions of

false recollection, with relative integrity of the intellect. The authors think the sole essential symptom is amnesia of fixation. Presbyophrenia has been supposed to be: (1) a variety of senile dementia: (2) a variety of the polyneuritic psychosis of Korsakow: (3) a confusional state associated with hepato-renal insufficiency or with cerebral arteriosclerosis: (4) a functional cerebral defect from disease of the occipital lobes more particularly. The authors bring forward interesting evidence to associate the symptoms of presbyophrenia with impaired function of the visuopsychic areas and occipital lobes generally. S. A. K. WILSON.

THE CLASSIFICATION OF INSANITY. JOHN TURNER, *Journ. of* (301) *Ment. Sci.*, Jan. 1912.

A VERY interesting contribution to this difficult and vexed question, but one to which justice cannot be done in a short abstract.

W. BOYD.

AMENORRHŒAL INSANITY. C. T. EWART, *Journ. of Ment. Sci.*, (302) Jan. 1912.

THIS is an abstract of a paper read before a joint meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine with the Medico-Psychological Association. The full paper is published in the *Transactions of the Royal Society of Medicine.* The discussion which followed the paper contains much matter of interest. W. BOYD.

A CASE OF FULMINATING GENERAL PARESIS WITH AUTOPSY. (303) A. S. LEVERTY, *Med. Record*, 1912, i., p. 413.

A MAN, aged 45, of nervous temperament, infected his right index by venereal manipulations in March 1900. He did not seek medical advice till secondary symptoms appeared, and then was treated for eighteen months. A year after infection he married, and his first child died of meningitis. In 1906 he suffered for a month from headache, irritability, and inability to work. In 1909 paralysis of the right arm developed, but passed off after five weeks' energetic anti-syphilitic treatment. In January 1911 the first symptoms of general paresis appeared, and death took place three weeks later. The characteristic changes were found post-mortem.

J. D. ROLLESTON.

Review

ERGEBNISSE DER NEUROLOGIE UND PSYCHIATRIE. Redigiert von Prof. Dr H. Vogt, Wiesbaden, und Doz. Dr R. Bing, Basel. Erster Band, erstes und zweites Heft. Mit 38 Abbildungen. Jena: Verlag von Gustav Fischer, 1911. Price M. 20.

We extend a cordial welcome to this newcomer among the journals and reviews devoted to neurology and psychiatry. It is based on the familiar model of the *Ergebnisse der Physiologie* and others, and, if account be taken of the immense strides that these two sister sciences are making, it has been long overdue. No one who is interested in the scientific side of his profession, and who wishes to keep abreast of the advances which each year seems to bring, can hope to overtake by personal investigation the enormous output of neurological and psychiatrical literature of the day. The principle of the critical digest is useful and practical, however, and by its means it is possible at least to have some idea of what has been attained by the combined labours of research students in different schools and different countries. In the *Ergebnisse der Neurologie und Psychiatrie* we are promised a series of reviews on questions which are being discussed and debated either because of their scientific importance or their practical bearing, and the editors have already secured an excellent support for their undertaking. A strong committee contains the names of Babinski, Bechterew, Bramwell, Edinger, v. Frankl-Hochwart, Marinesco, Oppenheim, Sachs, Ziehen, and others, so that this new venture appears under favourable auspices.

The first number contains the following papers:—

1. "Bewegungen und Fortschritte in der Psychotherapie," by Isserlin;
2. "Pathogenese und Symptomatologie der Kleinhirnkrankheiten," by Mingazzini;
3. "Paralyse: Tabes: Schlafkrankheit," by Spielmayer:
4. "Der Gang und der gegenwartige Stand der Apraxieforschung," by Kleist.

Each of these critical digests occupies roughly one hundred pages, and all are enriched with abundant bibliographical references.

1. Isserlin's paper on psychotherapy is divided into three sections, dealing with suggestion-therapy (hypnotism), education-therapy, and analytic psychotherapy (psycho-analysis), respectively. The pros and cons of these different methods of treatment are handled in a judicious manner by the writer. He thinks the objections which have been raised against hypnotic methods—that

they tend to reduce the patient to the level of an automaton, who reacts in his waking life without knowing what he is doing or why he does it—may be advanced against any form of treatment which is concerned with suggestible nervous patients, and believes that suggestion, with or without actual hypnosis, carried out in an intelligent and educative fashion, is worthy of practice. A number of pages are devoted to psycho-analysis. Isserlin's attitude is unenthusiastic and critical, and stands in agreeable contrast to the exuberant welcome accorded to the method by certain "wilden Psychoanalytiker," whose prosecution of psycho-analysis has been, to say the least, indiscreet. Isserlin's conclusion, is well worth noting: "Ich halte jetzt die Psychoanalyse Freud's niemals für eine empfehlenswerte und in nicht genügend vorsichtigen und gewissenhaften Händen für eine gefährliche Waffe."

2. Mingazzini's article on the pathogenesis and symptomatology of cerebellar disease is fairly complete. Cerebellar softenings, tumours (intra- and extra-), abscesses, and atrophies, are described in turn. The author's reference to the subjective rotation phenomena as described by Stewart and Holmes in cerebellar tumours is not quite accurate. Mingazzini says that in extracerebellar cases the apparent rotation of external objects is from the side of the lesion to the sound side, while the apparent rotation of the patient's self is from the sound to the affected side, which is correct. He goes on to say, however, that in intracerebellar cases the reverse is the case, which may probably lead to misunderstanding: in intracerebellar cases the apparent rotation of external objects is again from the side of the lesion to the sound side, but the subjective rotation of the patient's self is now in the same direction as that of external objects. Mingazzini points out that the observations require confirmation, and that Bruns, Souques, and others have failed to corroborate them. His description of the cranial nerves likely to be involved in extracerebellar tumours does not serve to show which nerves are most commonly and most severely implicated, yet this is an important point. When the sensory fifth is affected, the earliest sign is usually areflexia corneæ, but Mingazzini does not mention the fact that this may be present while there is no other indication of trigeminal involvement: again, the earliest trace of objective anæsthesia in the trigeminal cutaneous distribution is to be found in the ophthalmic division, but this fact, also, is not alluded to. The section on atrophy and agenesis of the cerebellum is interesting. The question of classification is somewhat vexed: Mingazzini's is here quoted in its entirety.

(1) Pure one-sided atrophy or agenesis.

(2) Pure double atrophy or agenesis.

(3) Cerebellar atrophy associated with (*a*) agenesis or atrophy in other parts of the brain (agenesis seu atrophia cerebello-cerebralis); (*b*) agenesis or atrophy of the spinal cord (agenesis seu atrophia cerebello-spinalis); (*c*) agenesis or atrophy in other parts of the brain, cerebral cortex, brain-stem, and spinal cord (agenesis seu atrophia cerebro-cerebellospinalis).

3. Spielmayer's article on general paralysis, tabes, and sleeping sickness does not contain much that is new: while all the recent advances in the diagnosis of general paralysis are duly chronicled, the references to conditions resembling G.P.I. (so-called pseudo-paralysis) are somewhat inadequate, especially to cases arising as a result of metallic and other poisoning. Spielmayer thinks that "Stabchenzellen" are of especial diagnostic significance in the histopathology of general paralysis, but does not appear to be aware of Mott's view that they are merely collapsed capillaries. In regard to plasma cells, Nissl's conclusions are quoted, that absence of plasma cells in the cortex excludes general paralysis, while their presence is not pathognomonic. The paragraphs on affection of the cortical and subcortical myelinated fibres in general paralysis—in reference to the occurrence of small round areas of demyelinisation such as are found in disseminated sclerosis—are interesting and important.

4. Kleist's paper on apraxia is throughout excellent. It is satisfactory to find that priority in the matter of apraxia is justly assigned to Hughlings Jackson, who described the condition accurately in 1866. There is a great deal that is debateable and not a little that is doubtful in Kleist's contentions that psycho-motor apraxia is associated with disturbance of function of the cerebello-frontal system of fibres, while his attribution of automatic movements of expression, &c., to the corpus striatum and corpus Luysii, as well as to the optic thalamus, is not, in the opinion of the reviewer, justifiable. In his paragraphs and table on the localisation of motor apraxia, as confirmed by post-mortem examination, Kleist has omitted all reference to Tooth's important case (see this Review, 1909, p. 475).

It is a pity that there are so many inaccurate references in the volume under review to papers appearing in English journals. "*Brain*" is erroneously referred to as "*The Brain*"; numerous mistakes in the titles of articles, *e.g.*, as in a paper "on the intra-cranials tumors" occur; a reference to the "*Brit. Med. Journ.*, Bd. I. p. 669," is useless when the year is not mentioned; but the climax is reached on page 221, where the authors of a paper on the pathology of general paralysis of the insane are given as "Press and Circular"!

S. A. K. WILSON.

BOOKS AND PAMPHLETS RECEIVED.

Cyriax, E. F. "The Treatment of Facial Paralysis, with Special Regard to Nerve Friction" (*International Clinics*, Vol. i., Series 22).

Gamel, Raymond. "Chiqueurs, Mangeurs, Buveurs et Fumeurs d'Opium." Coulet et Fils, Montpellier, 1912. Pr. Fr. 3.

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Review

of

Neurology and Psychiatry

Original Articles

REVIEW OF BLEULER'S SCHIZOPHRENIA.[1]

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THE work of Bleuler on dementia præcox is undoubtedly one of the most important contributions which have been made to psychiatry for a long time. The most admirable part is the symptom-analysis which contains much that is of great value to every psychiatrist.

In discussing the book it is of course necessary, first, to be clear as to what Bleuler means by schizophrenia, and what he includes in this group,[2] because it comprises a great deal more than the group of dementia præcox, such as others conceive it. It contains all paranoic states, which are not the typical Kræpelinian paranoia; most psychoses which arise on the basis of psychopathic inferiority; probably many cases which, in order to emphasise certain impurities in the clinical picture, we here call

[1] "Handbuch der Psychiatrie." Herausgegeben von Professor Dr G. Aschaffenburg. Spezieller Teil, 4 Abteilung, 1 Hälfte. "Dementia Præcox oder Gruppe der Schizophrenien." Leipzig und Wien: Franz Deuticke, 1911.

[2] From the title of the book it is evident that Bleuler speaks of groups, and therefore admits the possibility of further subdivision, but he denies that such a subdivision is at present possible.

"allied to manic-depressive insanity," and, indeed, not a few cases which we would not hesitate to group as typical manic states; furthermore, the transitory hallucinatory and paranoic states, and Bleuler even suggests that the acute alcoholic hallucinosis may belong here entirely; again, all the chronic alcoholic paranoic or hallucinatory states; the prison psychoses and, as we shall see, many states which we prefer to call abnormalities of make-up. It is not surprising that Bleuler finds very little that remains to be classified in psychiatry, so far as the functional psychoses are concerned; and he practically mentions only the somewhat uncertain group of the fever psychoses. Therefore, with the exception of manic-depressive insanity, which to him is small, the few cases of Kræpelinian paranoia and hysteria, everything within the functional group of psychoses is dementia præcox. Nor is it to be wondered at that, in this dementia præcox, only a comparatively small number of marked deteriorations occur. Bleuler puts the figure at 22 per cent., while 18 per cent. present a moderate degree of deterioration, and as many as 60 per cent. a mild degree of deterioration. He claims, however, that there is no case in which some defect is not seen, but this defect is sometimes very slight and may amount to not much more than a lack of adequate insight. In order to understand this we must be familiar with his conception of latent schizophrenia. Bleuler considers that probably the largest number of cases belonging to the group of schizophrenia are latent cases who rarely come to asylums. They are cases which are looked upon as nervous people or as psychopaths; among them he describes irritable persons who cannot get along well, individuals with oddities, or those who are reticent, seclusive, or present an exaggerated scrupulousness and precision, and so forth. He admits that they are often difficult to diagnosticate, but they must have some of the fundamental symptoms which we shall presently speak of more at length, that is, a certain defect of logic, shut-in tendencies, or affective anomalies, more particularly a lack of interest in things which ought to interest them.

It is obvious that here Bleuler calls latent schizophrenia that which we would speak of as abnormalities of make-up, or what Adolf Meyer has called faulty mental habits. The question then, of course, arises, and Bleuler speaks of it in several places in his book, whether we are really dealing in such cases with a disease

or with an abnormal mental make-up. Bleuler is inclined to the former view, and his whole conception is based on this, whereas we take the latter view. This latent schizophrenia exists in almost all cases who develop active or, as he calls them, secondary symptoms. That abnormalities exist whether they be latent symptoms or abnormalities of make-up, also makes it clear, it seems to me, why one should find, practically always, mild defects after the acute psychoses; yet I think it would be very difficult to demonstrate that these cases present really an increase in their abnormalities after the psychosis. It is also interesting in this connection that Bleuler, in spite of regarding the latent schizophrenia as a part of the disease, speaks of transitions from latent schizophrenia to the normal.

So much for a general survey. It does not seem to me that this wide conception should detract very much from the value of the book in the eyes of anyone who does not agree with Bleuler's conception. By describing the symptoms within this large group, he has given many excellent observations. The question is whether or not these symptoms lead over to the grosser characteristics of the more accepted dementia præcox. It looks to me as if this were so, that is to say, as if he were describing mechanisms which throughout have a certain cohesion, but whether we shall make use of this fact as he does, remains to be seen.

In studying the symptomatology it is, at first sight, a little difficult to get clearness, because Bleuler speaks of fundamental symptoms and of accessory symptoms, but he speaks also of primary symptoms and secondary symptoms, and these two sets of groups are not coextensive—the fundamental symptoms are not necessarily primary symptoms, though all accessory symptoms are secondary; some fundamental symptoms are, however, also secondary. Among the *fundamental* symptoms, by which he means symptoms which are always present to a certain extent in active as well as latent schizophrenia, he mentions, above all, a disorder of the association process, that is, a primary loosening of the connection. He also mentions abnormalities of the affective life, particularly a more or less extensive loss of interest, and that which he calls by a very good term "autism," that is, the tendency to turn away from the outside world, or that which we have called shut-in tendencies. He also mentions other features, but these are the most important.

Among the *accessory* symptoms are the acute symptoms of the psychoses: delusions, hallucinations, katatonic states, &c.

Now the *primary* symptoms: By that he means the symptoms which are in his opinion directly due to the disease process which he postulates, admitting, however, that we do not know this process, and he also concedes that the possibility of a purely psychogenic origin of dementia præcox cannot be denied absolutely. This supposed disease process he is inclined to regard as associated with some poison, and he takes the analogy of rheumatism which may be either chronic or acute, which may last a lifetime or stop. These primary symptoms, which he attributes directly to this underlying disease process, he also admits are not definitely known, and it should here be stated that Bleuler is very open in his theorising and speaks of it as tentative. However, he is inclined to think that the association disorder, that is, as I said, a loosening of the associations which gives rise to elisions, to marked defects in logical thinking, even to imperfect concepts, &c., is a primary defect. As we shall see, Bleuler explains a great deal in the clinical picture of schizophrenia psychologically on Freudian mechanisms; the blocking and other disorders in thinking, acting, and feeling, are referred to a great extent to this. But he is evidently of the opinion that this is not enough, but that some fundamental disorder must be assumed to make such extensive complex-manifestations possible. Of course it is a question whether that is so. In addition to the association disorder, there is very little that is primary. He mentions states of torpor (*Benommenheit*), conditions which occur at times in the course of dementia præcox and which have been described by Reichardt and others, and in connection with which cerebral edema has been found. These cases are sometimes fatal, or at any rate, according to Bleuler, prognostically always serious so far as deterioration is concerned. He admits, however, that we are not sure whether these conditions are really primary, whether they might not be due to vasomotor changes which, though they produce physical changes, might yet be essentially secondary to the process. He also regards the manic-depressive waves as being directly due to this disease process, largely because manic-depressive waves occur in general paralysis, and also because organic, nutritional states produce emotional waves. He also speaks of the possibility that the tendency to hallucinations and

stereotypy are primary symptoms, although both of these manifestations he admits to be essentially due to Freudian mechanisms; but he evidently looks upon the tendency as something more. Chronic katatonic conditions are also included here, though every katatonic symptom in the acute states is explained psychogenetically. He finally mentions some bodily symptoms, such as tremor, the pupil differences, vasomotor disorders, edemas, some of the katatonic attacks which, sometimes with hemiplegic distribution, give one the impression of organic phenomena. It is obvious that these primary symptoms have not a very firm foundation, although we can well see the reasons why something more fundamental than psychogenetic mechanisms is looked for.

As to the *secondary* symptoms, they are caused, as we have already said, by a combination of the action of the primary ones and the action of psychogenetic factors. However, he admits that his assumed disease process and the clinical pictures are often remarkably independent of each other, and that most syndromes do not depend upon the disease process. In spite of his conviction of the importance, therefore, of psychogenesis for the production of symptoms, and even acute syndromes, he lays very little stress, in his chapter on etiology, upon the mental causes. The reason for this is quite clear; it is because the mental causes do not produce the disease, but merely some symptoms, and as a matter of fact he has very little to offer in the way of etiology. According to Bleuler, mental causes produce attacks, but the disease has existed before.

We have now come to the point where we should go a little more thoroughly into the question of *demarcation*, and the possibility of *combination* with other disorders. We have above stated how much Bleuler includes in his schizophrenia. What naturally interests us most is the question of the relationship of manic-depressive insanity and schizophrenia. Manic-depressive states very often occur in his schizophrenia, and they differ more or less from the typical manic-depressive states. Some of these distinctions are quite familiar to all of us. There is a certain lack of unity in the affective reaction; delusions with different affective tone may be expressed at the same time; the relation between ideas and affect is not clear; the movements of expression may not harmonise among themselves; the manifestations of emotions

are not deep and frank, but shallow and stiff; there may be a lack of modulation in the talk of the patient; the sound associations are often far-fetched in contradistinction to what is seen in the pure manic states (due to the association disorder); a fascination by external impressions may lead to a senseless naming of things about the patient which is quite different from distractibility; the absence of an over-activity which would correspond to the mood always speaks for dementia præcox, except in mixed manic states, the existence of which, by the way, he admits. He finally also mentions the lack of contact with the environment. All these differences may be more or less marked. In speaking of the depressive conditions, he mentions the existence of typical retardation in dementia præcox, but also mentions states of reduction of activity, which lack the consistency of typical retardation as well as the accompanying deep affect. It is also interesting that, so far as I can see, all the states of feeling of unreality and depersonalisation are to Bleuler schizophrenias. He speaks of the difficulty of differentiating between dementia præcox stupor and retarded stupor, and mentions the usual distinctions. It is of interest that all these conditions resembling manic-depressive insanity, but with the admixture of schizophrenic symptoms, and hence included by Bleuler in his dementia præcox, have, as a rule, a good prognosis; and in this connection we may mention the fact that in his chapter on prognosis he says that cases which had one or two good remissions very rarely deteriorate, or, in another place, that recurrent manic-depressive states of dementia præcox usually do well, but on rare occasions deteriorate very badly. One might, of course, ask why we should not speak then of a combination of manic-depressive reactions and dementia præcox reactions, and why, in spite of a relatively good prognosis, we should lay so much stress upon differences which are often relatively slight. Of course the idea of any combination of reaction in this connection is in many ways opposed to Bleuler's conception, since he regards dementia præcox as a disease process, whereas he probably would not feel quite so averse to the concept of reaction in the case of manic-depressive insanity. For this reason, just as in the case of general paralysis, he must conceive of the dementia præcox as the essential, of which the manic-depressive swings are an outcome. Nevertheless, he admits the possibilities of a combination of the two disorders to a small

extent. He mentions the well-known fact that dementia præcox cases who start with paranoic symptoms rarely develop depressions, and very rarely manic attacks in the further course of the disorder. If the latter happens, however, as it occasionally does, he is willing to entertain the possibility of a combination, but, of course, a combination of diseases, not of reactions. The same he says of another group, namely, the cases who without deteriorating have circular attacks on the basis of an otherwise latent schizophrenia. He adds that a manic-depressive heredity might then help to make the assumption of a combination more probable.

Late katatonias often begin as involution melancholias, and are then to be regarded as schizophrenias. Depressions are very common in schizophrenia, and, if I understand him correctly, any hallucinations which are not in harmony with the mood, oddities in behaviour, or any peculiarities in make-up, would at once put the case into schizophrenia.

For brevity sake I will say only a few words about epilepsy. The combination is rare, although epileptic attacks occur in schizophrenia. We may also pass over the combinations with organic disorders.

Interesting is the question of hysteria. Every hysterical symptom may occur in dementia præcox, but whether a combination is possible cannot be settled because, according to Bleuler, we do not know the fundamental process in either the one or the other. Paranoia may be a very chronic dementia præcox, the mechanism of delusion formation is the same, but we do not find real schizophrenic symptoms.

Important is his attitude toward the alcoholic psychoses. Ten per cent. of his dementia præcox cases are alcoholics, who take alcohol on account of their dementia præcox, and he claims never to have seen the sequence of alcoholism-dementia præcox but only that of dementia præcox-alcoholism. We have seen that he suggests the possibility of the alcoholic hallucinosis being in reality a schizophrenia, but he lays stress on the good prognosis when it is not associated with the more characteristic symptoms; on the other hand all kinds of less typical hallucinatory and delusional episodes are frequently produced in schizophrenia by alcohol. The delirium also may have admixtures. Here he adds nothing to what Bonhoeffer has stated. He describes a delirium

as a peculiar state of consciousness, with variations of level, hallucinations of vision and touch, a mood which presents a mixture of anxiousness and euphoria, occupation delirium, and poor retrospective recollection. If to this are added stereotypies, or hallucinations of body sense, such as electrical influences, or if there be a prominence of auditory hallucinations, then we have mixtures of schizophrenia and an alcoholic psychosis. I have already mentioned that the chronic alcoholic psychoses are essentially dementia præcox.

We next have to take up the *symptoms and symptom descriptions more in detail*, together with their explanation as Bleuler gives it. As I have said, the part which refers to this is extremely interesting, not only for the psychology of dementia præcox but for psychiatry in general, since Bleuler here attempts an explanation of many symptoms in his characteristically clear and well-balanced manner, and since the book is the first comprehensive work on a subject of psychiatry, in which the principles of psycho-analysis are made extensive use of.

It is perhaps well to mention, first, the *functions which are not affected.* Under this heading he takes up apprehension, orientation, memory, consciousness, and motility, and justly makes a sharp distinction between dementia præcox and the organic psychoses which are the expression of a diffuse degeneration of the cortex. He describes as the essential alteration in these organic psychoses, the following: a lack of clearness in, and a slowness of, apprehension, an incapacity for complicated thinking, a memory defect, a disorder of orientation, a defect of attention, more particularly of the habitual attention. Quite interesting is what he says about the affectivity in the organic disorders. He claims that all affects are retained and correspond to the intellectual content, but are superficial. In other words, the affective deterioration in the organic conditions is secondary to the intellectual one. These diffuse disorders of apprehension, memory, and orientation are foreign to dementia præcox. There is no essential defect of apprehension. What appears to be is due either to a loss of the feeling of reality, or to blocking which temporarily excludes outside impressions, or other mechanisms. Often the patient registers without choice all the impressions, so that even more may be perceived and registered than in the normal. In this connection the memory should be taken up before the orientation. The many

wrong answers need, of course, not mean either an apprehension or a memory defect. If a patient says that he does not know what year it is, but soon afterwards replies that he went to such and such a place in 1910, "two years ago," we know that his not telling us the present year was due to something different from an essential memory defect, such as we find in organic psychoses. Or, patients may speak symbolically, or transform the outside world in harmony with their ideas. Blocking of thought in connection with complexes also simulates an essential memory defect, and other dementia præcox traits produce similar results. In this connection he also mentions the lack of correlation of mental contents and the lack of adequate deliberation in thought due to lack of interest, the negativistic tendencies and the wrong answers due to associative elisions which, according to him, are due to a combined influence of complexes and the primary association disorder. At any rate, I think that most of us will agree with him that an essential memory and apprehension defect do not belong to the symptomatology of dementia præcox. We might question whether we may not have a real apprehension disorder in connection with delirious states, and this brings us to the problem of the orientation. Nevertheless, he denies this; he denies that a primary orientation disorder exists even in the deliria of dementia præcox, but that the lack of clearness is always due to a falsification of the environment in harmony with the trends. If a patient believes himself to be in a royal hall, he has a certain difficulty in orienting himself correctly. If another patient, for psychogenic reasons, puts the time eight days ahead, he will give a wrong date; or, if he thinks he was born with Christ, he cannot give his age unless that idea just at that time has no influence upon his mind. What he really means by primary disorientation is a clouding of the sensorium, which he defines as a primary disorder in the combining of sense impressions, the non-perception of many impressions, and their alteration in the sense of illusions, in other words, that which we find in conditions which we have called organic deliria. But such a defect of sensory contact he has not seen in dementia præcox, except to a certain extent in the torpor which occasionally occurs in fatal cases. The deliria, therefore, of dementia præcox are not fundamentally different from those of hysteria. Nevertheless, he also mentions in another place states of incoherence, conditions which, he says, correspond to the amentia of the Vienna

school. These cases present restlessness and fragmentary incoherent productions. The mood may be variable; there are bodily symptoms, such as a coated tongue, perhaps some fever, and the patient has a poor grasp on the environment. He attributes this essentially to an intense association disorder, and so far as I can see, almost entirely to a primarily association disorder. They are, however, acute cases who do well, and it is difficult to see why such cases, if they were due to a flare-up in the disease process, should have the same good prognosis as the acute states which are, as he says, independent of the disease process. All this offers a good example to show how difficult is the whole question of separating acute confusions. On the one hand, we have the more typical organic deliria; on the other hand, the more psychogenic deliria, then the states of torpor and these incoherencies which all have a different basis and different mechanisms.

Among the functions which are not altered, we finally also come to the motility. He claims that all the changes which here occur are due to other fundamental symptoms, and he is probably correct in spite of the Wernicke school, the latest expression of which are the studies of Kleist.

Now as to the *changes which do occur*, we might first speak of the *train of thought*. This is altered in many ways. We have first to mention the *association disorder*, of which we have repeatedly spoken as we went along. Bleuler describes it very extensively, and yet somehow it is not so very easy to grasp the nature of this disorder; it is evidently not so very different from Wernicke's sejunction, though free from all localising anatomical bywork. It is conceived of as a more or less widespread primary interruption of the associative connection of ideas. Actual or latent associations, which, in the normal, determine the train of thought, or combinations of such ideas may remain without influence upon it in an apparently aimless fashion, whereas other ideas which have no connection may intrude themselves. Hence the train of thought is scattered, bizarre, illogical, abrupt. This may be so slight that it is difficult to discover, and in his description of mild conditions he says it may not be found, or only after a thorough search; it accounts for much of the scattering of ideas in chronic states, and, as we have said, it is supposed to be the explanatory principle in acute incoherence. On the other hand, similar phenomena may be due to the action of complexes, and have to be

explained psychogenetically. But this psychogenetic explanation does not appear to him sufficient. It is somewhat difficult to see, especially when we consider the extensive symbolisation, substitutions, the indifference, the negativism, &c., why something beyond these psychogenetically explicable disorders is required.

In passing over to the description and explanation of the *symptoms*, which are *explained largely on psychogenic principles*, it is important to state once more that here Bleuler stands essentially on the same ground as Freud. This, in the writer's opinion, is to be regarded as a great advance in psychiatry.

The psychology of dementia præcox cannot be understood unless we accept the importance of unconscious trains of thought, and the importance of the affects. All these factors manifest themselves through Freudian mechanisms. But this influence is a much more extensive one in dementia præcox than in the normal, or in hysteria, for example. The affects produce much more profound dissociations. The influence of reality is much more excluded. We might almost say, the individual manifestations stand in the mind much more like foreign bodies. We have attempted to account for this largely by the shut-in tendencies, while Bleuler attributes it, the shut-in tendencies included, to his primary association disorder, which we have described, and which gives the affects greater sway. He states that whereas the logical train of thought follows paths established by experience, the affects direct the train of thought according to desires and aversions. In the normal they are responsible only for the general direction of action, and the logical operations are not falsified except in realms where subjectivity is generally permitted to guide us, as in matters of taste, for example. In dementia præcox the affects disorder even otherwise well-grounded associations. Through this greater influence of the affects, the possibility of a more or less complete exclusion of all that does not harmonise with the affective complexes is also possible, so that these may assume more and more a certain autonomy, and can manifest themselves without there being any attempt at correlation.

Blocking, that is, an exaggeration of repression, is a symptom which, in its characteristic form, is found only in dementia præcox and which refers not only to thought but also to motility. It is frequently interpreted by the patient as "the taking away of thoughts," or in some other way is one of the possibilities which

give rise to that which we have called the "feeling of passivity." It is found usually, perhaps always, in connection only with thoughts which are of great importance affectively; it is therefore often topical but may also become diffuse so as to lead to generalised blocking. The same principle also accounts for the fact that hallucinations and delusions are often difficult to express, nor fully accessible to the patient, because they are the products of complexes, and as such may be in part under the influence of repression. Blocking may not be entirely unsurmountable, and there are transitions to conscious disinclination to speak or to utter ideas. Blocking is, moreover, very apt to lead to clisions, in the sense that if one path is not open the train of thought flows into another path. Not only individual ideas but entire complexes may be barred or split off.

As to the *content of thinking*, he puts *delusions* and *hallucinations* side by side, and justly so. They represent wishes, or the delusions of persecutions, often represent the opposing forces, that is to say, that which forms an opposition to the fulfilment of the wishes if formulated or projected as persecution. He then gives a great many examples of delusion and hallucination formation entirely on the ground of Freudian mechanisms. Ideas of infidelity he explains as due to antagonism towards wife or husband. He also mentions homosexuality, but with more reserve than Freud and Ferenczi. Children are usually identified with the husband, hence the child may die, as well as the husband, in the imagination of the patient. Among the sexual symbols, he mentions knives, revolvers, needles, animals such as horses, bulls, cats, dogs. He mentions murder as a coitus symbol, also burning and being in hell. The mouth and eyes often stand for vagina. The lover is represented as God, saint, or devil. Urination may stand for orgasm, defecation for birth. Substitutions may play an important rôle, and may make the interpretation difficult, and such a difficulty in interpretation may also be caused by the fact that a gradual metamorphosis may take place which makes the original source of the delusion or hallucination difficult to obtain. I will mention only one example, that of a woman who thought she was a ram. This Bleuler traced back to her love for a clergyman. As frequently is the case, her lover was first represented as God, then as Christ, and finally as the lamb, whereupon the idea of the ram became clear. It is almost wicked to treat

this part of the book so briefly, but I would take too much space if I were to go into it more thoroughly.

What Bleuler says of *affectivity* is very interesting, and corresponds to what he has stated in his excellent little book on "Affectivity, Suggestibility, Paranoia."[1] So far as the description of the affective changes is concerned, he states that while many chronic patients show profound apathy, others are apathetic chiefly towards higher interests. In mild cases the affective disorder may be masked, because the patients may have normal affects in certain directions. This is seen in the world improvers, the prophets, and the like. Some cases may show lability, but without depth. The special features which characterise the manic-depressive syndromes in dementia præcox we have already spoken of. Irritability is frequently retained, even parental love, or compassion; or the artistic feeling may be relatively good in some cases; but the feelings which regulate the relations with others, such as shame, ethical feelings, are apt to suffer early. He mentions a woman who was rather better after a katatonic attack, and this improvement was due to the fact that she was less altruistic, and therefore more comfortable. He also describes under this heading of the affects, the fact that the feelings often do not correspond with the ideas, that there may be a remarkable apathy towards delusions or hallucinations, that there is no unity of ideas and the manifestations of the affect, and that the manifestations of the affects themselves may be disharmonious. His well-known theory of ambivalence should be mentioned also. Every desire or impulse is closely associated with its opposite, every thought has two contrasting feelings associated with it, which normally are fused according to the greater value. In dementia præcox this tendency has greater sway, and in part explains negativism, suggestibility, and many of the bizarreries.

Bleuler's claim that the affective disorders are not primary but secondary, is a very important conception which has met and undoubtedly will meet with considerable opposition, yet he has good arguments on his side. In the first place, he shows that when the complexes are touched, the feelings can be brought out in normal intensity, that is to say, when we are able to force the patient to think of his complexes, his entire affective attitude

[1] English translation by Dr Ch. Ricksher. *N.Y. State Bulletin*, Vol. iv., No. 4; also obtainable in reprint form.

changes and becomes much more normal. I am convinced of the truth of this observation, for anyone, in studying dementia præcox cases who are at all accessible, must have noticed the remarkable changes in the attitude of the patient which occur during an interview when his symptoms and his complexes are talked over with him.

Bleuler also mentions in this connection the cases which are apparently apathetic and yet get well, that is, the so-called late recoveries; and he claims that when late in life a senile deterioration is added to the dementia præcox, the patients become affectively more natural and more accessible. Moreover, in the milder cases, not all the affects have disappeared, and the disappearance of that which has gone can be explained psychogenetically. This remarkable splitting off of the affects, or whatever we may call it, he tries to make comprehensible in the following manner: He first points out that we cannot explain these affective disorders on the ground of a diffuse lowering of affectivity, because it is too irregular, nor reduce it to the intellectual disorder alone. We know from normal psychology, as well as from psychology of hysteria, that affects which are difficult to bear may be inhibited or repressed. Indeed, in preoccupation with an affective experience we may find repression not only of the affective experience, but a certain amount of general indifference, that is, an inhibition of affects in general. It will be remembered that Jung spoke of the "belle indifference" of the hystericals, something which, by the way, we may see in ourselves in regard to some of our complexes. Yet such split off affects are not lost, and may give rise to certain bodily manifestations in spite of the fact that they are not conscious. We see this in the association experiments, in the psychogalvanic phenomena, and in dementia præcox very often in the peculiar smiles and blushes. Bleuler thinks that such normal tendencies have a much greater sway in dementia præcox, owing to the association disorder which he looks upon as a fundamental defect. Of course autism also favours it. That which has often been spoken of as the disharmony between affective and intellectual content is explained on the ground that the manifest intellectual content, as in dreams, very often stands for something else, or that which is represented in consciousness as a fear, for example, is in reality a wish. I remember a woman who, now with peculiar forced apprehensiveness, now with a smile, insisted that her

husband was being tortured downstairs. This incongruous affective attitude became much more comprehensible when we knew that one trend of her personality was a strong desire to get rid of her husband. Similarly the peculiar mixture of affective expressions, sometimes seen in dementia præcox, can be explained by the fact that contrasting affects run side by side without fusion, as would be the case in the normal.

A difficult subject is *autism*. By autism Bleuler means that which we have called the shut-in tendency, the more or less complete shutting out of the environment, or, at any rate, all that which does not correspond to the wishes. It may be so marked that the patients even shut out all sensory impressions, close their eyes and ears, make their body as small as possible by crouching. Bleuler regards this autism as a secondary phenomenon, and looks upon it as one of the results of his association disorder, whereas the autistic thinking is the day dreaming, the thinking without reference to reality. This autistic thinking flourishes in schizophrenia. The normal person includes in his logical operations more or less everything of his experience, past and present, which has a bearing, irrespective of its emotional value. Bleuler thinks that the schizophrenic defect in logic makes the exclusion of a great many external and internal facts possible, and thus gives sway to a tendency which we all have, namely, to live in fancies which suit us, something which we indulge in but do not allow to influence our conduct, but which in the schizophrenic assumes the value of reality. As we have said, it seems difficult to prove that such autistic tendencies have to be explained on the ground of the association disorder. We know that they exist frequently for a long time before any other symptoms appear, so far as we can tell. We know that boys with moderately pronounced tendencies of this sort may still be very good at school, or in the simple deteriorations, it is difficult to demonstrate an association disorder. Therefore, we can say that, at any rate, the two alterations do not go hand in hand. Hence the autism would seem to be something more fundamental. But in my opinion it is something which depends upon a congenital tendency, more or less marked, so that it manifests itself earlier or later. It has always seemed to me that it was this tendency to autism which, when marked, gave rise to the poor prognosis in the typical dementia præcox cases. From this point of view, then,

we would be dealing not with the primary association disorder, which gives rise to the autism, but the autism would be the primary tendency which allows mechanisms, otherwise not so serious, to assume a much greater degree of intensity and persistency. But, of course, this whole attitude is entirely different from Bleuler's conception.

In continuing our description of symptoms, we come to the question of negativism, stupor, catalepsy, mannerisms, stereotypies.

Negativism is difficult to explain and we are hardly far enough to derive it from one simple disorder. But Bleuler adduces a good deal which is of interest in this connection. In the first place, he points to what he calls ambivalence, that is to say, the fact that every impulse is closely associated with its opposite, as a principle which makes negativism less incomprehensible. The general autistic tendencies are naturally also favourable for the development of negativism, but also a certain sensitiveness and instinctive desire on the part of the patient to protect himself against actual and possible irritation of his mental wounds, so to speak; also a rather natural opposition against the more or less hostile attitude of the environment, and very likely, not infrequently, a certain difficulty in thinking and acting. That suggestibility and negativism should be associated with each other, we know from other conditions; we find it in children, hystericals, and seniles. It is as if the suggestibility led to a protective warding off; the action of complexes accounts for the fact that negativism is very often topical, and then is called into play more particularly in situations which are connected with such complexes.

Stupor may be produced in various ways. In the first place, by cerebral torpor (according to Bleuler, an exacerbation of the disease process). Secondly, some general reductions of activity or some more or less pronounced conditions of inhibition of mental activity are explained as generalised blocking, because it can be seen at times to develop out of a more topical disorder of this sort, and Bleuler likens this to the so-called emotive stupor sometimes seen in normal individuals; at the same time the tendency to stereotypy of impulses, and what Bleuler speaks of as the tendency to generalisation in dementia præcox, as well as the lack of interest and the difficulty in mental operations, may also contribute to the full development of this reduction. Of course blocking and

negativism here run together. Stupor-like states may also be produced by numerous hallucinations, which through exclusion of the outside world reduce activity. He also mentions retardation of the type of manic-depressive insanity, and suggests the possibility that conditions may exist in which motility is excluded very much in the same way as it is in sleep.

Catalepsy, again, is difficult to explain. However, Bleuler mentions the undoubted fact that with a great dearth of ideas, it is not infrequently seen even in organic psychoses, or something like it occurs to all of us when we are absorbed. In pronounced cases of catalepsy, the spontaneous movements may cease or may be retarded so that we have conditions which in many ways resemble manic-depressive retardation. It seems to me very valuable that here more mechanisms accounting for reduction of activity are suggested than are usually assumed.

The *katatonic excitements*, that is, the motility psychosis of Wernicke, he claims, can always be psychologically explained, and he denies the existence of real choreic movements, and regards such explanations as those of Kleist as forced, just as he expresses his inability to accept the sensory origin of katatonic movements for the simple reason that we have no evidence of any sensory disorders.

Automatisms are put on the same level as hallucinations, that is to say, are looked upon as intrusions into consciousness of split-off complexes, whereas mannerisms are essentially the same as Freud's *Symptomhandlungen*.

I will not go into more extensive description of Bleuler's analysis of other symptoms. Suffice it to say that Bleuler, who has investigated a great many cases, claims that a great deal in the symptom picture can be explained by psychoanalysis, and that that part of the symptomatology which is the most obvious is perhaps wholly the expression of a more or less successful attempt to escape difficult situations, hence psychogenetically explicable.

Something should be added in regard to the *course* of the disorder. Irregularity in the course is the most common; characteristic is only the tendency to deterioration. Delirious conditions do well. We know of no acute condition which need deteriorate. Mild cases may not get worse for years. Former recoveries argue for later recoveries. Patients who develop

paranoic states after thirty are apt not to deteriorate in their behaviour. Very acute syndromes, with periodical repetitions, do badly. Hallucinations and delusions in acute states are prognostically not necessarily bad; even after some years, a relative recovery may take place. On the other hand, marked scattering of ideation is a bad sign, as are senseless stereotypies and the combination of negativism with apathy, &c.

In this somewhat cursory review of the valuable work of over four hundred pages, I had to limit myself to the more important facts. In conclusion I wish to say: Bleuler has described all the symptoms which Kraepelin has mentioned in his dementia præcox, and has consistently included such symptoms, even in their milder degrees, whenever they occur, &c. We must not forget that his description comprises very much of the symptomatology of the functional psychoses, practically everything with the exception of the pure manic-depressive symptoms. There exists, undoubtedly, a great difficulty in drawing a line anywhere by saying here are symptoms which are fundamentally different from the rest. (To quite an extent they correspond to what we have been in the habit of calling trend mechanisms.) Take for example the prison psychoses, the hysterical psychoses, the impure feature in certain manic-depressive states. It is difficult to say that the mechanisms are not the same as in dementia præcox. But Bleuler goes further. He says when these symptoms occur they belong to a more or less definite disease process. He claims they are symptoms which occur nowhere else, and that, moreover, the course is the same in all cases who present such symptoms, and different from the other disorders, because whenever they occur, the outlook is more serious, not in the sense that marked deterioration occurs, but that there is always some defect left. We have shown that some of the defects we would attribute to defects in make-up. This connection of definite symptoms and essential similarity in outcome, a conception which with Bleuler is wider than with Kraepelin, leads him, as well as Kraepelin, to the assumption of a definite disease process. This he attributes to a poison, and assumes primary symptoms as the direct outcome of the disease process. These primary symptoms, which, as we have seen, are not on a very firm foundation, represent the basis on which extensive psychogenic mechanisms can take place. But, as he admits himself, there is very little parallelism between disease

process and symptoms and it does not seem to me that the proof is very strong that all symptoms *cannot* be psychologically explained in the face of so much that he himself has thus referred to purely psychogenic mechanisms, nor that the constitutional abnormalities are not responsible for a great deal in the symptomatology and development of the disease.

In emphasising the psychogenic interpretation of dementia præcox even more than Bleuler does, we are, of course, well aware that there is a physical side to this disorder. If we assume, as we do, that dementia præcox is essentially a disorder of instincts, it is self-evident that a very important component of the mechanisms of dementia præcox must be physical, be this now in the form of vasomotor changes, abnormalities of internal secretion, or other metabolism disorders; but we know very little of these, whereas we can see in a general way a sequence of mental events so that we can, at least to a certain extent, describe what occurs in *mental terms*. It would seem, nevertheless, justifiable to speak of psychogenesis, because it seems that the connection of the mental and the physical is here different from what it is in the organic disorders.

Another point in which we would differ from Bleuler is this: We question whether it is advisable to assume a circumscribed primary disease process unless we take the concept of disease process in a much wider sense than is customary. We are inclined rather, somewhat in the same way as Adolf Meyer does, to look upon the symptom pictures of these functional psychoses as *reactions* of individuals, reactions which differ in different individuals according to the mental make-up, the importance and deepseatedness of the conflicts, and perhaps other features. We, therefore, expect that similar mechanisms should occur in conditions which are otherwise dissimilar. We expect, for example, that manic-depressive and dementia præcox reactions, if we may inconsistently use this term in this connection, may be combined; that transitions occur—and we feel the necessity of sizing up our clinical pictures according to the different values which we give to the different features and factors which enter into the clinical picture. It is for this reason that we urge the making of smaller groups with special combinations of traits, special etiological constellations, &c., because the usual diagnosis only imperfectly expresses the real situation, since in all probability these diagnoses only represent groups of cases which are

similar enough so far as their centre is concerned, but shade off into each other when we come to the periphery of the groups. It would seem to us, therefore, rather unfortunate if this book of Bleuler, although one cannot say enough of its value as a help in symptom-analyses, would lead us to widen the group of dementia præcox still further. Before we allow ourselves to be influenced in this way, we should make it clear to ourselves what our standpoint is. We cannot have the one of which we have just spoken, and diagnosticate dementia præcox as Bleuler does. On the other hand, we cannot have Bleuler's standpoint and diagnosticate, for example, an impure manic state as allied to manic-depressive insanity as we do here, since Meyer has introduced this term, because that presupposes a totally different psychiatric standpoint. Whether we are right or whether those who speak of circumscribed diseases or disease process are right, or how much of a compromise is possible, is perhaps as yet an open question, but as a working hypothesis, at any rate, it would seem that our present way is the more open one.

Abstracts

ANATOMY.

(304) **AN ANATOMICAL AND EXPERIMENTAL STUDY OF THE VAGUS NERVE. Part 2: THE NUCLEUS AMBIGUUS. (Le Nerf Vague. Étude Anatomique et Expérimentale. Deuxième Partie: Le Noyau Ventral du Vague ou Noyau Ambigu.)** M. MOLHANT, *Le Névraxe*, Vol. 12, F. 3, March 1912, p. 221 (75 figs.).

THIS part of Molhant's study of the vagus in the rabbit has three chapters: (1) limits and connections, (2) histology, (3) nuclear localisations, and an appendix on radicular localisations. The experimental methods used were avulsion of the root-fibres, and section of the various nerve-branches; but in the case of nervus recurrens Molhant used violent rupture, as he had found (as others had) that simple section of this branch gives no appreciable cellular reaction in the bulbar nuclei. The animals were kept for from nine to fifteen days. The rabbit's nucleus ambiguus, extending from the facial nucleus to the distal end of the hypoglossal nucleus, has three segments: (1) compact formation, (2) semi-compact or intermediate, (3) scattered formation. All the axons

of its cells enter the homolateral IX. and X. nerves. Its cells are large and of the motor type of Nissl; their endocellular network is of the reticulo-fibrillar type; their axons are mostly large, but some are small; size of myelin sheath varies according to size of fibre; myelogenesis of the large fibres is precocious, of the small is late.

A. Compact Formation.—Forms about the cephalic one-sixth of nucleus.

(1) Most of its cells form the motor nucleus for the œsophagus; their proximal, intermediate, and distal parts correspond with the cervical, thoracic, and abdominal segments of the œsophagus.
(2) Its medio-external part is motor for the nervus laryngeus superior.
(3) Inner part of its cephalic portion is motor for IX. (this is the small cellular column described as the ventral vagus nucleus by van Gehuchten, *Journ. de Neurologie*, iii., 1898).
(4) A few aberrant cells on its inner side form part of the motor nucleus for the ramus pharyngeus X.

B. Semi-compact Formation.—About the intermediate one-fifth of nucleus ambiguus; forms the chief motor nucleus of ramus pharyngeus X.; its cells are smaller than those of the compact formation.

C. Scattered Formation.—Nearly the caudal two-thirds of nucleus; large cells; is motor centre of laryngeal fibres of nervus recurrens.

Appendix.—Molhant recognises four groups of root-fibres in the rabbit: (*a*) proximal gives exit to motor fibres of IX.; (b^1) proximal part of middle group contains all the motor fibres for œsophagus, those of nervus laryngeus superior, and some of those of ramus pharyngeus X.; (b^2) distal part of middle group contains half the motor fibres of ramus pharyngeus X., and about one-third of the motor laryngeal fibres of nervus recurrens; (*c*) distal segment contains approximately two-thirds of the motor laryngeal fibres of nervus recurrens.

Part 1 of Molhant's study of the rabbit's vagus was on the dorsal nucleus (*Le Névraxe*, May 1910); he concluded it is the motor nucleus for the unstriped muscles of the vagus, viz., of heart, stomach, trachea, bronchi, and lungs. Part 3 is to include the two peripheral vagus ganglia, a subject on which there are great discrepancies between the experimental findings of Alfewsky and of others in the rabbit. The whole study of the rabbit's vagus nerve should, when completed, be of great value.

LEONARD J. KIDD.

THE ACOUSTIC COMPLEX AND ITS RELATIONS IN THE
(305) **BRAIN OF THE OPOSSUM** (*Didelphys virginiana*). JOHN H. STOKES, *Amer. Journ. Anat.*, Vol. 12, 1912, pp. 401-445.

THE author describes, with the help of wax plate reconstructions made from Weigert sections, the vestibular and cochlear roots, nuclei and central connections. The apparatus as a whole conforms to the general type seen in mammals and man, but with some differences which are believed to be due to the primitive character of the opossum. The dorsal and ventral cochlear nuclei are medial to the restiform body. There are no distinct striæ medullares, the dorsal path from the cochlear nuclei being a cochleo-olivary bundle which runs over the medial vestibular nucleus and bends down to the superior olive of the same side. The lateral lemniscus and its nucleus, the inferior colliculus and medial geniculate body are briefly described.

The vestibular apparatus presents medial, lateral, spinal, and superior nuclei and connections with the cerebellar base. The nucleo-cerebellar tract connects with a large, poorly-defined nucleus fastigii, and forms a decussation in the roof of the ventricle.

The paper closes with the description of a number of typical Weigert sections in the three planes.

This is the first of a series of studies being made in the anatomical laboratory of the University of Michigan, in which it is proposed to present a morphological survey of the entire brain of Didelphys. J. B. JOHNSTON (Minnesota).

THE FINER ANATOMY OF THE BRAIN OF BDELLOSTOMA
(306) **DOMBEYI.—II. THE FASCICULUS COMMUNIS SYSTEM.** AYERS, HOWARD and JULIA WORTHINGTON, *Journ. Comp. Neurol.*, Vol. 21, 1911.

THE authors describe the fasciculus communis system on the basis of preparations by the methods of Golgi, Cajal and iron-hæmatoxylin-lithium. "Fasciculus communis fibres enter the brain from both branches of the trigeminus, the facial, glossopharyngeal, and vagus nerves." The presence of fibres of this system in the trigeminus is an important contribution, since this is not known in any vertebrates above the cyclostomes. In typical fishes and higher vertebrates the cutaneous component is absent from the seventh nerve, and in the ninth and tenth nerves it is reduced in mammals to the small ramus auricularis vagi. On the other hand, the communis or visceral sensory component is confined to the seventh, ninth, and tenth nerves. In petromyzonts the cutaneous component, as shown by the reviewers' work, is present in the seventh nerve, and here in Bdellostoma the fasciculus

communis is represented in the trigeminus. From this it appears that in primitive vertebrates each of the cranial nerves, V., VII., IX. and X., was a complete branchial nerve supplying both the visceral surface and the skin. The cells of the grey matter of the fasciculus communis and the disposition of the secondary fibres are described. The commissura infina Halleri contains fibres from the centres of both the communis system and the dorsal funiculi, but not primary root fibres.

J. B. JOHNSTON (Minnesota).

THE TELENCEPHALON OF GANOIDS AND TELEOSTS. J. B. (307) JOHNSTON, *Journ. Comp. Neurol.*, Vol. 21, 1911, pp. 489-591.

THIS paper follows the author's earlier work on the general morphology of the forebrain and the telencephalon of selachians. The brains of Amia, Acipenser, Lepidosteus, Polyodon, Ameiurus, Coregonus, and Catostomus were studied. In the discussion of the general morphology of the forebrain it is shown that the di-telencephalic boundary is marked by the attachment of the velum transversum to the massive walls just in front of the nucleus habenulæ. The region heretofore known as the præthalamus belongs to the telencephalon medium as in selachians. The morphological relations of the lamina terminalis, lamina supraneuroporica and tela chorioidea of the telencephalon are described. The lamina supraneuroporica is defined as a massive portion of the roof plate dorso-caudal to the recessus neuroporicus, and the tela chorioidea as the membranous roof of the telencephalon medium. In the massive walls are recognised a dorsal part filled with pyramidal cells, the primordium hippocampi, and a basal part whose rostral and medial part represents the olfactory lobe, and whose lateral part in the telencephalon medium is a somatic sensory area. The development of the forebrain shows that these chief divisions are differentiated before the brain is everted, and that the eversion consists chiefly of the growth and turning outward of the primordium hippocampi.

In the description of the internal structure importance is attached to the cell-free zona limitans which separates the primordium hippocampi from the olfactory lobe. The primordium hippocampi receives fibres from the olfactory tract and a large tract ascending from the hypothalamus known as the tractus pallii. Evidence is given that the tractus pallii is a gustatory tract, and that the primordium hippocampi is an olfacto-gustatory correlating centre. The size and degree of eversion of the primordium hippocampi are directly proportional to the number of taste organs and the size of the gustatory centres. The primordium

hippocampi has a large commissure running by way of the anterior commissure, and probably a true posterior pallial commissure running by way of the superior commissure of Osborn.

The somatic area is situated on the lateral surface of the telencephalon medium. It is directly continuous caudally with optic centres and is closely related to the grey matter in which the lemniscus ends. The development of this centre in several ganoids and teleosts seems to show that its cells have reached their position by migration from the region of the tænia. The conditions are similar to those which are seen in the development of the olives and the pontile nuclei in the medulla oblongata of mammals. In the development of the forebrain the primordium hippocampi is hypertrophied and pushes the somatic nucleus outward.

The author comments upon the necessity of distinguishing clearly between the primordium hippocampi as an olfacto-gustatory correlating centre, and the lateral olfactory nucleus which seems to have olfacto-somatic correlating functions, at least in selachians, and gives rise to the pyriform lobe in mammals. The paper contains a detailed comparison of the everted type of forebrain with the evaginated type, and a discussion of the phylogenetic position of the everted brains. AUTHOR'S ABSTRACT.

THE STRUCTURE OF THE SPINAL GANGLIA AND OF THE SPINAL NERVES. S. WALTER RANSON, North-Western University Medical School. *Journ. Comp. Neurol.*, Vol. 22, April 1912, pp. 159-175 (2 plates).
(308)

THE author has studied the sixth and seventh lumbar and first sacral ganglia in the dog by the pyridine silver method. After reviewing the types of cells in the spinal ganglia the author takes up the question of the discrepancy between the number of spinal ganglion cells and the number of medullated fibres in the dorsal root. He shows that "the small cells of the spinal ganglia exceed in number the large cells, that their axones are non-medullated, and divide after the manner of a T or Y into a central and a peripheral fibre." These non-medullated axones explain the discrepancy referred to. J. B. JOHNSTON (Minnesota).

PHYSIOLOGY.

ON THE FUNCTION OF THE CIRCLE OF WILLIS. S. P. KRAMER, *Journ. Exp. Med.*, Vol. XV., No. 4, April 1912, p. 348.
(309)

IT is usually regarded that the function of the circle of Willis is to equalise the blood supply to all parts of the brain, this anastomosis

acting as a kind of reservoir from which the different parts of the brain draw their blood supply through the various arteries leading from the circle.

The author injected methylene blue into one carotid artery in the living dog under ether, the other carotid and both vertebrals being unobstructed. He found that that part of the cerebral hemisphere which is supplied by the anterior and middle cerebral arteries, by the anterior choroid, and by the posterior communicating arteries on the same side, were stained. He next injected methylene blue into one of the vertebral arteries, the other vertebral and both carotids being unobstructed. The stain was distributed to those parts of the brain and spinal cord supplied by both vertebral arteries, the basilar artery and both posterior cerebral arteries and their branches. If one vertebral artery be tied and the other injected, the staining is incomplete on the side on which the vertebral was tied. If one carotid was tied and the other injected, the parts were stained as if the other carotid had been unobstructed. If both carotids or both vertebrals be tied, and one of the other arteries injected, then the separation of the areas disappears and the stain is then carried forward or backward as the case may be.

The circle of Willis is thus an antero-posterior anastomosis between the carotids and the vertebrals, which under physiological condition does not permit the mingling of the blood streams. When, however, either the anterior or posterior arteries are completely blocked, then the anastomosis will supply blood to the areas of the central nervous system supplied by the blocked vessels.

These results were also confirmed pharmacologically as follows: if only the blood of the vertebral artery goes to the medulla oblongata, and not that of the carotid or a mixture of both, then the injection of minute quantities of certain "bulbar" poisons into the vertebrate artery ought to produce on the centres in the medulla results which they would not cause when injected into the carotid. This was found to be the case.

A. NINIAN BRUCE.

(310) EXPERIMENTAL STUDIES OF PARALYSIS IN DOGS AFTER MECHANICAL LESIONS IN THEIR SPINAL CORDS WITH A NOTE ON "FUSION" ATTEMPTED IN THE CAUDA EQUINAS OR THE SCIATIC NERVES. HENRY O. FEISS, *Journ. Comp. Neurol.*, Vol. xxii., No. 2, April 1912.

AUTHOR produced mechanical lesions in the lumbar spinal cords of dogs. The object was to bring about distinct motor paralysis. After the animals had reached permanent stages in the paralysis,

so that there was no question about degeneration in the roots and peripheral nerve, the attempt was made to distort the nerve-patterns in these structures, using for this purpose a method heretofore apparently untried. This method is referred to as nerve fusion, and consists simply in uniting two or more nerves by tying them together with absorbable ligatures.

In the course of this research two other issues developed which proved to be of great interest. It was shown that after a lesion was produced in the spinal cord by the method described, a very characteristic spontaneous recovery took place similar to the early recovery often seen in infantile paralysis, and it was found that the material furnished data for adding to the precision of our knowledge on the localisation in the lumbo-sacral cord of certain nuclei of the pelvic viscera, and of the muscles of the hind limb and tail.

As regards this latter point, the author furnishes the data of ten experiments, presenting in each case a summary of the clinical findings including a photograph of the dog, to be compared with the pathological findings as presented in a diagram.

In his conclusion for this part of the work he states that, although inferences cannot be drawn for every point investigated, there is significance to certain isolated facts such, for example, as pertain to the relative isolation of the external popliteal and internal popliteal centres, suggesting perhaps that these nerves, which on account of their individual spheres of distribution control the best co-ordinated joint movements, have their nuclei relatively best defined. The main suggestion is that the grouping of cells seems to correspond, at least roughly, to the gathering of fibres in individual peripheral nerves. In spite of this suggestion the author admits that if the grouping of cells in the cord is ever susceptible of explanation, further investigation is required.

In the last part of the paper are given summaries of eight experiments in which fusions were attempted either in the cauda or in the sciatic nerves some months after the primary cord lesions were produced. Functionally, there seemed to be a little gain in two cases, both of which were involvements of the tail with fusion in the lower cauda. Anatomically, there was evidence of regeneration in or below the fusion neuroma in every case.

AUTHOR'S ABSTRACT.

ON THE FUSION OF NERVES. HENRY O. FEISS, *Quart. Journ.* (311) *Exper. Physiol.*, Vol. v., No. 1, April 13, 1912.

NERVES crushed and tied together with absorbable ligatures ("nerve-fusion"), actually grow together, and may become one structure anatomically and physiologically. Not only may such

nerves reassume their original functions, but they may also take on increased function, as induced by the new and different combinations brought about by the union.

The experiments so far performed were grouped into five classes:—

(1) Fusion of normal peripheral nerves in continuity (no division or excision).

(2) Nerve transplantation by fusion. (A nerve removed from its usual attachment and fused to another.)

(3) Fusion of normal spinal roots in the cauda, intradurally.

(4) Fusion of either peripheral nerves, or of caudal roots, some time after a primary cord lesion (in one case after an excision of anterior roots).

(5) Fusion of nerves partially degenerated after infantile paralysis (one human case).

In the present paper, author describes basic experiments on normal peripheral nerves, limiting himself to classes 1 and 2.

Fusion of Nerves in Continuity.—There were nine experiments in this class. It was found that after the fusion a neuroma formed consisting to a large extent of cells proliferated from the sheaths of Schwann. These cells are laid down in all directions. Consequently when regeneration began again, the new fibres had to be laid down according to the mechanical arrangement of these cells. The result was frequent crossing of fibres, and this was shown by physiological tests as well. Moreover, secondary excision of one popliteal above the neuroma, in two cases, failed to be followed by degeneration of the same nerve below the neuroma, suggesting that crossing had taken place.

Nerve Transplantation by Fusion.—Fifteen experiments of this class were performed. This was done by first excising a long piece of the external popliteal and then fusing the peripheral stump to the internal popliteal by means of two or three catgut ligatures. After several months, the physiological data showed conduction of impulses from the main internal popliteal trunk downward through the scar, both along their original course and into the transplanted external popliteal. Anatomically, the nerves showed a very intimate connection with the histological characteristics described above. There was free passage of fibres into both the original and grafted nerves, and in several cases a direct neural connection in the scar between the lower nerve segments.

Comparing the procedure of fusion with the method of anastomosis by suture, the author states that the results obtained by suture are nothing more nor less than the effects of conditions superinduced by scar. No matter how skilfully suturing is carried out, the final arrangement of the new nerve fibres must depend on

the mechanical conditions necessitated by the mass of proliferated cells which forms at the divided nerve ends. This mass of cells prevents the cut ends of the nerves from remaining in accurate apposition so as to enable fibres to pass directly from one fascicle into another. From this point of view the two methods are the same. The advantages of the fusion method are therefore in its physical possibilities, for one may carry out procedures not to be thought of by the suture method. AUTHOR'S ABSTRACT.

THE INTERNAL SECRETION OF THE SUPRARENAL GLANDS
(312) **AND THEIR INNERVATION. (Beiträge zur Physiologie der Drüsen. 17 Mitteil. Die innere Sekretion der Nebenniere u. deren Innervation.)** LEON ASCHER, *Zeit. f. Biol.*, Bd. 58, H. 6, 1912, S. 274.

EXPERIMENTS were carried out on rabbits in which all the abdominal organs were removed, only the suprarenals being left intact. Stimulation of the splanchnic nerves (whether single or prolonged) caused a rise of blood pressure (after a short interval of about thirty seconds), but not, however, if the suprarenal vein was occluded. The author concludes that the splanchnic nerve is a secretory nerve for the suprarenal gland and that when stimulated it causes adrenalin to be secreted. R. A. KRAUSE.

PSYCHOLOGY.

UNCONSCIOUS MANIPULATION OF NUMBERS. (Unbewusste
(313) **Zahlenbehandlung.)** ERNEST JONES, *Zentralbl. f. Psychoanalyse*, Feb. 1912, H. 5, S. 241.

IN the unconscious there occurs various manipulations of numbers that are comparable to the play with numbers indulged in by children. In products of unconscious mentation, *e.g.*, dreams and neurotic symptoms, this process is often used in the service of the tendencies to portray various buried phantasies, in a way very foreign to the workings of the normal waking consciousness. An instance of this is detailed, and it is pointed out how the mechanisms by means of which the manipulations are effected are identical with those described by Freud in connection with words and thoughts. AUTHOR'S ABSTRACT.

A FORGOTTEN DREAM: NOTE ON THE ŒDIPUS SAVING
(314) **PHANTASY.** ERNEST JONES, *Journ. Abnorm. Psychol.*, April 1912, p. 17.

AN analysis of two dreams of the same night. It is an instance of the common occurrence of one dream, previously forgotten, being recovered in the memory as soon as the resistances that had

caused it to be repressed have been overcome by a psycho-analysis. The more repressed dream is forgotten first. It also illustrates the fact that all dreams of the same night deal with different aspects of the same underlying mental problem. The dream analysis given shows the relation between the phantasy of saving someone's life and the Œdipus complex. AUTHOR'S ABSTRACT.

A SHORT STUDY IN DISLIKE. W. D. TAIT, *Journ. Abnorm. Psychol.*, (315) April 1912, p. 1.

A BRIEF analysis of an unaccountable dislike (to the colour brown), the cause of which was traced by means of a word-association experiment to a previously forgotten experience.

ERNEST JONES.

PATHOLOGY.

SCLEROTIC FOCI IN THE CEREBRUM OF AN INFANT. J. F. (316) MUNSON, *Journ. Nerv. and Ment. Dis.*, April 1912, p. 251.

THE case is recorded of a child twenty months old who had suffered from anomalous epileptic fits and who showed signs of mental retardation; there were no other evidences of nervous disturbance. The child died and the brain was found to contain numerous areas of sclerotic foci. The description given of these is very imperfect, but it is stated that the myelin sheaths had entirely disappeared in the sclerosed areas. The author, while admitting the rarity of the condition, considers that the case was one of infantile disseminated sclerosis. ERNEST JONES.

CLINICAL AND ANATOMICAL STUDY OF SO-CALLED "SENILE (317) PLAQUES." (Etude anatomique et clinique des plaques dites séniles.) MARINESCO, *L'Encéphale*, Feb. 10, 1912, p. 105.

THE anatomo-pathological substratum of senile dementia is commonly supposed to consist essentially of vascular lesions, atrophy of cerebral convolutions and alteration in nerve cells. Marinesco and Blocq, however, were the first to call attention to an entirely different and curious lesion, viz., "plaques" of variable size, in the cortex and elsewhere, which have since been described in detail by Fischer, Alzheimer, and others. Fischer considers them as the fundamental anatomical change underlying presbyophrenia. But there have been different opinions as to their significance.

Marinesco and Blocq described them originally as round nodules, of about 60 μ in diameter, occurring in different layers of the cortex, and distinguishable from nervous tissue by their deeper coloration. They were held to be nodules of neuroglial

sclerosis. Redlich gave the name of "miliary sclerosis" to the condition, regarding the nodule as a neuroglial overgrowth round a degenerated neuroglial cell. He associated them with epilepsy, as has Léri. Alzheimer considered them the basis of a mental disease of unknown nature. Fischer supposed the condition was one of necrosis, a sort of foreign body producing proliferative modifications of neighbouring neurofibrillæ. He thought the plaques were absent in simple senile dementia. In some ways the picture they show resembled a streptotrichosis, according to the same author. Hübner concluded that the plaques were always related to a blood vessel, and that they were composed of products of decomposition. He did not consider they were characteristic of any disease, and said they might be found in the brain of anyone over 50 years of age. Perusini held they were due to modifications of the neuroglial reticulum, and that there was nothing specific about them. Simchowicz examined 108 brains and found the plaques in normal individuals, though they were much more abundant in cases of senile dementia.

Marinesco has studied the whole question anew, and his paper should be read in the original by all who are interested in cerebral pathology. His technique is a modification of Cajal's method; Bielschowsky's method is also good; he also recommends Merzbacher's method for neuroglia, and a method of Alzheimer's for products of decomposition.

The dimensions of the nodules vary from $16 \times 14\ \mu$ to $80 \times 72\ \mu$. They are found in various parts of the cortex. They are round or oval, and sometimes of irregular contour, and their constitution is extremely complex. In them may be distinguished a central nucleus, an intermediate layer, and an outer zone. Variations of these may occur. The central nucleus (well seen by Bielschowsky's method) takes on the stain very deeply, and at its periphery often subdivides into fine needle-like rays (not unlike certain crystals). This nucleus always takes the colour of the dye employed to stain the section (Pappenheim-Unna, Giemsa, &c.). From the nucleus fine filaments join it to the outer zone. The plaque is an indication of degeneration and metamorphosis. It has a double action, chemical and mechanical. It separates the cortical fibres of its immediate vicinity, and compresses them, so that degeneration sets in, but this is followed by phenomena of regeneration, in the shape of the formation of hypertrophied fibres, twisting and turning, often with knoblike masses at their extremities.

The exact nature of the central nucleus is unknown. Marinesco does not consider it arises either from a nerve cell or a glial cell. The main constituents of the rest of the plaque are possibly of the nature of a colloid precipitate. S. A. K. Wilson.

CLINICAL NEUROLOGY.

BLOOD PRESSURE IN CHEYNE-STOKES RESPIRATION. L. J. (318) POLLOCK, *Archiv. Int. Med.*, Vol. 9, No. 4, April 15, 1912 p. 406.

THE mechanism of the changes of blood pressure in Cheyne-Stokes respiration associated with increased intracranial tension is as follows: the intracranial tension being higher than the general blood pressure, cerebral anæmia exists and apnea is present. The vasomotor centres are automatically stimulated to raise the general blood pressure in an effort to produce an equilibrium between it and the intracranial tension. As the general blood pressure rises respiratory movements recommence; at their height the vasomotor centres are no longer stimulated, and the general blood pressure again falls, and the respiratory movements diminish and finally cease. A. NINIAN BRUCE.

TABES IN BROTHER AND SISTER. (**Du tabes chez frère et sœur.**) (319) J. HEITZ, *Paris méd.*, 1911-12, i., p. 494.

FAMILIAL predisposition to tabes, even when infection is derived from different sources, is illustrated by the following case. The brother had a severe attack of tabes. His wife, however, was not affected. The sister was infected by her husband and developed tabes three years later. In the husband, however, the knee jerks, ankle jerks, and pupils were normal. In both the brother and sister the circulatory system remained intact, thus showing that they offered a certain resistance to syphilis. Heitz thinks that similar cases would be found to be relatively frequent if the signs of commencing tabes and Wassermann's reaction were investigated in the relations of confirmed tabetics, as Babinski has recently suggested (*v. Review*, 1910, viii., p. 422). J. D. ROLLESTON.

TYPHOID FEVER IN A TABETIC WOMAN. (**Un cas de fièvre typhoïde chez une tabétique.**) (320) P. LE NOIR and DESBOUIS, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 428.

ALTHOUGH tabes does not add to the gravity of an intercurrent infectious disease, it may produce some changes in the ordinary clinical picture.

The present case was a woman, aged 32, with well-marked tabes of five or six years' duration following untreated syphilis. The attack of typhoid was severe, and was remarkable for the rapidity of the pulse (120 to 130), persistent retention of urine and the occurrence of gastric crises, one of which simulated perforation, but the diagnosis was established by the presence of liver dulness and the absence of abdominal distension. J. D. ROLLESTON.

THE CAUSES OF DEATH IN TABES. C. W. BURR, *Journ. Nerv. and*
(321) *Mental. Dis.*, March 1912, p. 145.

THE causes of death are mentioned in thirty-four cases of tabes, but no general summary is given. The author points out the importance of examining the whole body, and of not concentrating attention on the spinal cord alone. ERNEST JONES.

PARAMYOCLONUS FOLLOWING MUMPS. (**Paramyoclonus d'ori-**
(322) **gine ourlien.**) M. LAFFORGUE, *Rev. de méd.*, 1912, xxxii., p. 303.

A SOLDIER was admitted to hospital on 30th June with well-marked parotitis, followed on 4th July by orchitis. On the 9th he developed irregular jerkings forward of the head due to clonic contractions of the sterno-mastoids. The corrugator supercilii in the face, the pectoralis major, deltoid, biceps, flexors of the fingers and interossei in the upper limbs, and the quadriceps, calf muscles, tendo Achillis and extensor proprius hallucis in the lower limbs were similarly affected. The following days the movements persisted in the same muscles, other groups being also occasionally involved. There was no paresis nor amyotrophy. Sensation was not affected. The reflexes were normal, except that the pharyngeal reflex was absent and the knee jerks were slightly exaggerated. On the 13th lumbar puncture was performed owing to headache and vomiting, and showed a normal cerebro-spinal fluid. After the 26th the movements became almost entirely confined to the flexors of the fingers and toes until 10th August, when they became as generalised as before. The cerebro-spinal fluid was again found to be normal. On the patient's discharge on the 15th the myoclonus was much less, but had not completely ceased.

J. D. ROLLESTON.

THE PSYCHIC SYMPTOMS IN MENINGITIS SEROSA. N.
(323) ZYLBERLAST, *Neurologja Polska*, 1912, Vol. 2, No. 3.

THE author's case concerns a woman, 30 years of age, who for many years has been suffering from a typical migraine with vomiting. In one of such attacks the headache did not pass away in a few hours as usual, but, on the contrary, grew worse. It was accompanied by very severe vomiting during two days. The patient was feverish for two or three days, and became unconscious. After recovering from a very grave condition, there could be observed mental disorders—disorientation in time and place, apathy and not quite clear consciousness. Later she became depressed and had hallucinations. Choked disc was present.

Gradually all these symptoms (including the choked disc)

passed away. Six weeks afterwards a complete recovery was made which was observed during half a year.

The author supposes that this case is a case of meningitis serosa in a woman with frequent migraines, during which different psychic symptoms appeared. (Similar cases described by Krafft-Ebing, Kœppen.) J. HANDELSMAN (Warsaw).

A CASE OF SPORADIC CEREBRO-SPINAL MENINGITIS SIMU-
(324) **LATING THE URÆMIA OF BRIGHT'S DISEASE.** G. W. M'CASKEY, *Journ. Amer. Med. Assoc.*, 1912, lviii., p. 849.

A FATAL case in a man, aged 45, in whom the diagnosis was made by examination of the cerebro-spinal fluid and blood. No necropsy. J. D. ROLLESTON.

THE AMYOTROPHY OF LEAD POISONING WITH INCREASED
(325) **REFLEXES.** W. B. CADWALADER, *Journ. Nerv. and Ment. Dis.*, March 1912, p. 153.

Two cases of lead poisoning are described, both clinically and pathologically, which had presented the clinical picture of amyotrophic lateral sclerosis. The literature of the subject is also discussed. ERNEST JONES.

CLINICAL AND PATHOLOGICAL-ANATOMICAL CONTRIBUTION
(326) **TO THE STUDY OF ACUTE APOPLECTIFORM BULBAR PARALYSIS. (Klinischer und pathologisch-anatomischer Beitrag zum Studium der akuten apoplektiformen Bulbärparalyse.)** BASCHIERI-SALVADORI, *Archiv. f. Psychiat. u. Nervenkr.*, Bd. 49, H. 2, 1912, S. 359.

A DESCRIPTION of a case of a woman, aged 32, who, three days after parturition (normal), showed a gradual rise of temperature followed by dulness at the base of the right lung. Five days later, after a gynecological examination, she complained of feeling unwell, and was found to have become suddenly paralysed in both arms, both legs, and both sides of the face with anarthria and dysphagia. Consciousness was not lost. Sensation could not be investigated. She died three days later with signs of respiratory paralysis.

At the autopsy, twenty-four hours later, a septic endometritis was found with gangrenous broncho-pneumonia and acute nephritis. Lumbar puncture, performed immediately after death, gave a blood-stained fluid under tension. On opening the skull, the blood vessels were found to be engorged. The ventricles were normal, but numerous hæmorrhagic patches were seen, especially in the upper part of the pons Varolii involving the pyramidal tract on the left side. The right side was free from hæmorrhage

The nerve cells in the grey matter of the pons were unaffected, and there was no evidence of perivascular leucocyte infiltration nor of glia proliferation. The medulla oblongata was free from hæmorrhage.

The case was considered to be one of septic endometritis, with pulmonary gangrene and broncho-pneumonia from a septic embolus, by way of the uterine veins, followed later by a second embolus from the lung to the brain. A. NINIAN BRUCE.

ELEMENTARY CONSIDERATIONS OF APHASIA. F. S. HAMMOND, (327) *Amer. Journ. Insanity*, April 1912, p. 683.

A SUMMARY of the current views held on the subject.

ERNEST JONES.

ON THE ARTIFICIALLY PRODUCED TRANSITORY MOVE-
(328) **MENTS IN SPASTIC TRANSVERSE PARAPLEGIA.** J. BABINSKI and JARKOWSKI, *Neurologja Polska*, 1912, Vol. 2, No. 4.

IN some cases of spasmodic transverse paraplegia, in which the voluntary movements seem to be completely abolished, it is possible to produce them artificially for a short time by special methods, *e.g.*, by pressure on the limb with Esmarch's band, or by electrical stimulation. The authors have observed such renewed movements in cases of disseminated sclerosis and of tumour of the spinal cord. For example, in a case of compression of the spinal cord in the cervical region with complete paraplegia, the patient could for a very short time bend his knee and move his thigh when his limb was stimulated by a Faradic current.

J. HANDELSMAN (Warsaw).

A CASE OF STATUS EPILEPTICUS WITH AN UNUSUALLY
(329) **LARGE NUMBER OF CONVULSIONS.** S. A. SMITH, *Journ. Amer. Med. Assoc.*, 1912, lviii., p. 857.

A FATAL case in a girl, aged 8 years, who had a total of 1,649 grand mal seizures in four and a half days, the largest number for any twenty-four hours being 573 convulsions.

J. D. ROLLESTON.

BACTERIOLOGICAL EXAMINATION OF THE CEREBRO-SPINAL
(330) **FLUID IN DIPHTHERIA. (Bakteriologische Untersuchungen des Liquor Cerebrospinalis bei Diphtherie.)** W. LEEDE, *Ztschr. f. Hygiene*, 1911, lxx., p. 104.

THE present investigation was suggested by the work of Bonhoff, who found diphtheria bacilli present in 9 out of 17 cases in

which he removed the cerebro-spinal fluid 24 to 36 hours post mortem. Leede withdrew the fluid from the cranial cavity directly after death in 57 cases. In 41 the fluid was sterile, in 15 it contained streptococci and in 1 pneumococci. In only 3 were diphtheria bacilli present, in each case associated with streptococci. The blood in these 16 cases showed a corresponding infection. Leede also performed lumbar puncture on 33 cases during life, in all of which the fluid was sterile, though some had extensive paralysis (*cp. Review*, 1908, vi., p. 712). In 7 cases there was considerable hypertension. He concludes that passage of diphtheria bacilli into the cerebro-spinal fluid occurs shortly before death. J. D. ROLLESTON.

THE CEREBRO-SPINAL FLUID IN CERTAIN MENTAL CONDI-
(331) **TIONS.** W. BOYD, *Journ. Ment. Sci.*, April 1912.

THE chief points investigated were the cell-count, the protein content, and the Fehling-reducing power of the fluid. The cells were counted by Widal's method. The Noguchi test was used for estimating the protein content, but it was found that the most convenient way to make an accurate estimation was to use the ammonium sulphate ring test of Ross and Jones, and to determine the degree of dilution of the fluid with which the test was still positive.

The cytological and chemical results in tabes and general paralysis were identical with those of other observers. An increase both of cells and of protein content was observed, however, in certain other conditions, namely, a case of cerebral tumour which was certainly non-syphilitic, certain cases of epileptic insanity, two cases of imbecility without evidence of syphilis, and eleven cases bearing a strong family resemblance to one another and approximating more closely to dementia præcox than to any other recognised form of insanity. Many of these cases were examined on several occasions, and exactly the same result was obtained on each occasion. These cases bore no relationship to syphilis, to epilepsy, or to any form of excitement. No new facts were ascertained regarding the Fehling-reducing power of the fluid.

Although most of the cases were kept in bed for twenty-four hours after lumbar puncture, and as a rule not more than 7 or 8 c.cm. of fluid were withdrawn, yet unpleasant after-effects such as headache and vomiting were the rule rather than the exception. This applies to the asylum, not to the hospital, patients who were examined, and general paralytics were always exempt from after-effects. AUTHOR'S ABSTRACT.

OPERATION FOR DECOMPRESSION: RECOVERY. R. W. MULLOCK, (332) *Brit. Med. Journ.*, April 20, 1912, p. 890.

A SHORT account of a case of a man, aged 25, who presented symptoms of a cerebellar tumour of the right side. Headache was extreme; there were also present vomiting, dizziness, double optic neuritis, lateral nystagmus, especially to the right, tendency to fall to the right, and his right arm and leg were weaker than the left. Mercury and potassium iodide were of no benefit. At the operation no tumour was found, and the wound was closed. He made a steady improvement, and was able to return to his former work a year later, at which time there was no headache, and his gait, sight, and co-ordination were normal. A. NINIAN BRUCE.

A CASE OF HYPOGLOSSAL NUCLEI PARALYSIS. A. M. MOLL, (333) *Brit. Med. Journ.*, April 20, 1912, p. 890.

A MAN, aged 30, with a history of syphilis, felt his speech somewhat affected; swallowing and chewing became embarrassed, and these functions were almost entirely lost twelve hours later. There was also weakness in his legs, but no loss of consciousness.

A month later the tongue was found to be atrophied, wrinkled longitudinally, could not be protruded, and showed fibrillary tremors. The faradic response was much diminished; the reaction to galvanism was somewhat difficult to determine on account of the fibrillary tremors, but was definitely diminished. The orbicularis oris clearly participated in the electrical alterations, although the facial muscles were not affected, and the ocular muscles and remaining cranial nerves were intact. The gait was spastic, the knee jerks were increased, and some ankle clonus was present.

Great improvement took place under iodides and mercury.

A. NINIAN BRUCE.

ERYTHROMELALGIA. J. RUDZKI and J. HORNOWSKI, *Neurologja* (334) *Polska*, 1912, Vol. 2, No. 4.

AS erythromelalgia is a rare disease (only about 200 cases have been described, and only a few of these have been described post-mortem), the case of the authors merits special attention. The case concerns a woman, 30 years of age, who, for a few years, suffered with a psychosis, and had attacks of erythromelalgia and of Raynaud's disease, viz., she felt suddenly very great pains in both hands, associated with a purple discoloration. Both hands became swollen, and the local temperature rose. After such attacks, sometimes in a few hours, the symptoms changed, and were quite the opposite: both the hands became black and cold,

but with no pain. The patient suffered from these attacks for about four years. After death, the post-mortem examination was carefully made. The results, as to the nervous system, central and peripheral, were negative; but the authors discovered changes in the skin and in the larger and smaller blood vessels, from which small vessels branch towards the diseased part. The histological changes in the skin affect chiefly the elastic fibres: in some parts they are torn or twisted, in others they cannot be traced at all. Arteriosclerotic changes are not observed in the blood vessels; the Dürck's fibres are chiefly diseased. The authors could also observe an increase of the chromaffin cells in the medullary substance of the suprarenal glands.

As for the pathogeny, the authors do not agree with any of the theories; they suppose that in erythromelalgia the elastic fibres in the skin and in the blood vessels are first of all diseased in people who have sympathicotonic constitution, and only afterwards (secondary) could there be observed changes in the spinal cord in places where the sympathetic vaso-motor nerves originate.

J. HANDELSMAN (Warsaw).

RECENT AMENORRHŒA, RETROGRADE MASCULINISM.

(335) **(Amenorrhée recente. Masculisme régressif.)** P. DALCHE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 303.

A PREVIOUSLY normal woman developed amenorrhœa after a miscarriage caused by violence at the age of 23. She then began to lose her embonpoint, her breasts became flaccid and small, her limbs slender, and hair began to appear on her face, abdomen and thighs. Dalche suggests that the injury to the right ovary and Fallopian tube at the time of the miscarriage initiated a polyglandular syndrome in which the ovaries and thyroid and possibly the hypophysis and suprarenals played a part.

J. D. ROLLESTON.

OVARIAN INSUFFICIENCY AND ILL-DEVELOPED GRAVES' DISEASE IN HEREDITARY SYPHILIS.

(336) **(Insuffisance ovarienne et syndrome de Basedow fruste chez une hérédo-syphilitique.)** GAUCHER and SALIN, *Bull. Soc. franc. de Derm.*, 1912, xxiii., p. 62.

THE patient was a woman, aged 24, with well-marked signs of hereditary syphilis and a positive Wassermann's reaction. During the last six months signs of ovarian insufficiency had arisen, viz., puffiness of the face, suppression of menstruation, psychical troubles and vaso-motor disturbance. In addition the presence of tachycardia and tremors indicated some perturbation of the functions of the thyroid.

J. D. ROLLESTON.

INSANITY WITH MYXŒDEMA. G. F. BARHAM, *Journ. Ment. Sc.*, (337) Vol. lviii., No. 241, April 1912.

THIS paper is in support of the view that the disordered cerebration seen in cases with myxœdema in some instances originates independently of the physical disease, and attention is drawn to the fact that the disappearance of the latter under thyroid treatment does not ensure eradication of the former in all cases. Dr Barham points out that there is an essential difference between the common mental symptoms of athyroidism, hypothyroidism, and cretinism on the one hand, and, on the other, certain definite types of mental disorder associated with myxœdema, which may be cases of manic-depressive insanity, dementia præcox, or varieties of hysteria and the psycho-neuroses. As illustrations of the latter, the writer gives the history of a patient restored to physical health by thyroid treatment who yet developed symptoms of a hypo-maniacal disorder of mind shortly after leaving the asylum. From the patient's narration a long-suppressed emotional conflict was discovered, sufficient, Dr Barham holds, to be regarded as the psychic origin of the morbid state. The more it is found that disordered thyroid metabolism, in itself curable, is only a contributory factor in such cases, the more should caution be observed against too hopeful a prognosis in regard to insanity with myxœdema. GEORGE R. JEFFREY.

COMPLETE BALANCE STUDIES OF NITROGEN, SULPHUR, PHOSPHORUS, CALCIUM, AND MAGNESIUM IN INTESTINAL INFANTILISM. F. H. M'CRUDDEN and H. L. FALES, *Journ. Exp. Med.*, Vol. xv., No. 5, May 1912, p. 450.
(338)

IN two cases of infantilism there was poor absorption from the intestines of nitrogen, sulphur, phosphorus, calcium, and magnesium. The excretion of these elements in the urine was low, the excretion of calcium being so small as to be negligible. The excretion of calcium into the intestines was increased. The complete balance experiments showed that while other elements were retained, calcium was lost. A. NINIAN BRUCE.

NERVE SYPHILIS IN THE NATIVES OF NORTH AFRICA. (Quelques cas de syphilis nerveuse chez les indigènes de l'Afrique du Nord.) E. SALZES, *Journ. des Pratic.*, 1912, xxvi., p. 150.
(339)

THOUGH relatively uncommon, nerve syphilis is not exceptional among the natives of North Africa. Salzes mentions several cases in his own practice including an instance of general paralysis in a Musulman magistrate (*cp. Review*, 1911, ix., p. 694).
J. D. ROLLESTON.

SYPHILIS AND DEAFNESS. J. K. LOVE, *Glasgow Med. Journ.*, May (340) 1912, p. 349.

A PRELIMINARY paper upon the presence of a Wassermann reaction in the children at the Glasgow Institution for the Education of the Deaf and Dumb. Thirty-seven cases were examined, of which 17 were cases of sporadic or infantile deafness (nearly all congenital), 15 were cases of acquired deafness, and 5 of hereditary deafness. Only three positive Wassermann results were obtained. Two of these were born hearing. One was not deaf at all, but had paralysis of the muscles of articulation; one, who had a syphilitic mother and sister, became deaf at the age of 12; and the third had a cervical spinal curvature, presumably both this and the deafness being of syphilitic origin.

A. NINIAN BRUCE.

FATAL RESULT FOLLOWING INJECTION OF "606." H. MOORE, (341) *Dublin Journ. Med. Sci.*, May 1912, p. 321.

A SHORT account of a case of a man, aged 25, who was admitted to hospital suffering from early general paralysis. He had contracted syphilis and gonorrhœa three years previously. Wassermann reaction negative, urine normal, heart sounds weak. He was given 0·5 gr. "606" intravenously. Rather severe reaction for next twenty-four hours. Left hospital all right five days later with positive Wassermann reaction. Readmitted about three weeks later and given a second intravenous injection of 0·5 gr. "606." His temperature rose rapidly, his pulse became almost imperceptible, severe vomiting and diarrhœa set in, and he died on the following day. No autopsy. A. NINIAN BRUCE.

HYSTERIA AND PSYCHOTHERAPY. EUGENE D. BONDURANT, *Med.* (342) *Record*, March 9, 1912.

THAT hysteria is a degenerative psychoneurosis whose characteristic symptoms are due to suggestion is the view which is here elaborated.

The argument runs so: degeneracy is failure to attain in development the racial standard of anatomical structure and physiological function; suggestibility is inherent in the human mind, and when abnormally developed or improperly controlled by the reasoning mechanism, becomes a factor in nervous instability, contributing largely to the subjective symptomatology of disease; in almost all diseases of any kind there is heightened suggestibility, which means that the stress of sickness with malnutrition, toxæmia, and disordered metabolism "renders us all more suggestible, more

unstable, unbalances us, weakens us, makes us degenerate, as it makes us childish."

In hysteria, then, the predisposing factor is neurotic heredity, the contributory somatic factors are malnutrition, toxæmia, fatigue and allied states; the determining factor is suggestion. The cure means correction of structural and functional defects, enduring cure being conditioned upon removal of the cause. In this instance stopping the reproduction of the unfit is the only way of removing the basic cause. KELMAN MACDONALD.

MENTAL SYMPTOMS OF ACUTE CHOREA. A. R. DIEFENDORF, (343) *Journ. Nerv. and Ment. Dis.*, March 1912, p. 161.

THE author gives a short account of several cases, distinguishing between those with mild mental symptoms and those with pronounced insanity. The latter type is classified as a toxic delirium, the main symptoms of which are clouding of consciousness, hallucinations and delusions, confusion of thought, and emotional irritability. In some of the cases there was previously present a definite psychosis, such as dementia præcox, and the author insists on the importance of bearing this possibility in mind. ERNEST JONES.

THE HEIGHT AND WEIGHT OF FEEBLE-MINDED CHILDREN IN AMERICAN INSTITUTIONS. H. H. GODDARD, *Journ. Nerv. and Ment. Dis.*, April 1912, p. 217.
(344)

THIS paper is based on a comparison of the heights and weights of 10,844 feeble-minded children with normal children, the data of the latter being taken from well-known studies. The author concludes as follows: "The above figures seem to warrant the conclusion that we have a remarkable correlation between physical growth and mental development. The low grade (idiot) has not only a disturbed brain function but his entire organism is disarranged and growth processes upset. In the imbecile the same is true but to a less extent. In the moron (feeble-minded in the narrow sense) we have the interesting phenomenon of practically normal growth during the immature years, but an arrest of growth earlier than in normals. All defectives are heavier at birth than normals. This would once have been thought to be correlated with the defect through greater difficulty of birth necessitating the use of instruments with resulting injury. But in the light of our findings in heredity this is seen to be without force. Sex differences are less and less marked as we go down the grades of defect." ERNEST JONES.

THE MEDICAL EXAMINATION OF BACKWARD CHILDREN IN SCHOOLS. JOHN FORTUNE, *Journ. Ment. Sc.*, Vol. lviii., No. 241, April 1912.
(345)

THIS investigation was carried out in the Ipswich schools. Out of a school population of 12,000, there were 112 children who were definitely behind others of their age in mental capacity; 54 of these required other than ordinary school attendance for education, and 58 were marked as fit subjects for further observation in ordinary schools. Some interesting observations are stated, and the author is of the opinion that it is in the physical, not mental, condition that the greatest hope lies for improving backward children, and that faulty nutrition and "compulsory" education of children without a standardisation of the child's and the school's conditions are largely responsible for the existence of "backwardness." GEORGE R. JEFFREY.

THE DEFECTIVE DELINQUENT CLASS; DIFFERENTIATING TESTS. FERNALD, *Amer. Journ. Insanity*, April 1912, p. 523.
(346)

THIS is a very detailed study of the results obtained by applying certain tests to some hundred cases of juvenile defective delinquents. The tests include such procedures as the tapping test for speed of movement, the cancellated numeral test of attention, association experiments, and so on. The following conclusions are reached:—

1. The responsibility of defective delinquents is limited. Therefore they should be committed to a suitable institution instead of being sentenced for punishment with fully equipped misdemeanants.

2. The differentiation of mental defectives of the highest grade is based solely on the measurement of mental characters.

3. Mental characters capable of expression may be measured by applying uniformly, properly adapted psychological tests.

4. Cases of moral perversion, sexual deviation, degeneracy, insanity, &c., are not to be diagnosticated by tests adapted to differentiate defectives, but require other and appropriate means of investigation.

5. By computations based on the efficiency scores obtained from the application of appropriate psychological tests the relative standing of each subject of a group may be mathematically determined.

6. The group of scores and computations presented may serve as a nucleus to which new scores may be added, each in its relative standing, by alienists using the same tests and methods of computation. ERNEST JONES.

PSYCHIATRY.

THE INBORN FACTORS OF NERVOUS AND MENTAL DISEASE.

(347) F. W. MOTT, *Brain*, Vol. xxxiv., Nov. 1911.

AFTER a short introduction the author discusses the theories of inheritance referring principally to Galton's Law of Ancestral Inheritance. Reference is then made to the Mendelian doctrine of the gametic segregation of alternative unit characters and to Mendel's work on hybridisation. The modes of transmission of disease are then discussed. Nervous and mental diseases are not all transmitted in the same way, says Dr Mott; some are transmitted in successive generations of both sexes, sometimes equally, sometimes unequally, and many pedigrees show that some abnormal condition or defect may descend through many generations. As an example of this a diagram of the pedigree of four generations of Huntington's chorea is shown. Self-limitation is another mode of transmission, and in this the transmission is not only discontinuous or interrupted in successive generations, but the disease is limited to one sex,—the disease being transmitted by the sex in which the disease does not appear. In these hereditary self-limited diseases, the females transmit it, the males are affected, *e.g.*, colour blindness, and Hæmophilia. Galton, Pearson and others have shown that mental characters are inherited as well as physical characters: thus a child may resemble the father, mother, or some distant relative in its physical character, temperament, or mental qualities. A child may be feeble minded, but no child is born insane, and in every case of neurosis or psychoses we should endeavour, says Dr Mott, to ascertain what the individual was born with (nature) and what happened at or after birth (nurture). Fifty years ago it was pointed out by Morel that nervous irritable weakness—the neurotic temperament—may be the first evidence of a progressive degeneration of the stock. The morbid neurotic temperament may be shown in the conduct and behaviour of various members of the stock, and many signs of degeneracy in such individuals are frequently combined with talent or genius. The brilliant intellectual qualities of the degenerate are invariably associated with either a lack of moral sense, or of sound judgment. An interesting diagram illustrating these points is shown.

Dr Mott has found that insanity and degeneracy in a stock are often preceded by or associated with the existence of individuals possessing the "melancholic" temperament, but finds that this temperament may be associated with unusual abilities and great power of attention and concentration. Alcoholism, autointoxications, physical injury, emotional shock, &c., says Dr Mott, are often wrongly assigned as the sole cause of nervous and mental

disease, to the neglect of inborn factors. In nervous and mental, as in bodily, diseases there are nearly always two factors, viz., the soil and the seed, the inborn and the acquired environments. The more time and trouble that is taken in obtaining a history, the more frequently is there found an inborn factor which accounts partly, if not wholly, for the appearance of insanity in the stock. Several tables of pedigrees are given illustrating these points.

Dr Mott next points out that there is always the tendency to regression to the normal average of the species and of the race. The germ plasm of normal stocks is endowed with that dynamic stable equilibrium which has been fixed for ages by evolution in the struggle for existence. By this means heredity acts as the great fly-wheel by which, in the mechanism of the evolution of the species, Nature prevents poor mental and physical types from becoming perpetuated—by increasing the individual's susceptibility to various germs or poison, by intensifying the disease or predisposition to the disease, by bringing it on earlier in life, or even at birth, by which means the unsound members of the stock are unable to survive the struggle for existence. Dr Mott then discusses the Law of Anticipation, anticipation in hereditary disease being defined by Mr. Nettleship as a manifestation of the morbid change at an earlier age either in members of each succeeding generation as a whole, or in successively born children of one parentage. The chromosome theory is mentioned, and there then follows statistical data relating to inheritance and insanity, especially in relation to anticipation. Dr Mott bases his statistics from the notes on 2,800 cases. A series of interesting tables and diagrams dealing with collateral heredity are given.

From the collective statistics and curves, Dr Mott draws several conclusions in respect to transmission and anticipation, amongst which are (1) that there are more women in asylums than men, (2) that there are about three times as many male general paralytics as female, and that about one to four deaths occurring in asylums are from general paralysis, (3) that in the offspring of insane parents, daughters are more numerous than sons. The female sex in a stock is more liable to become insane, but the figures do not show that the mother is more liable to transmit than the father, (4) that the great majority of the offspring are affected at a much earlier age than the parents, and that puerperal insanity increases the height of the female curves, and (6) that if the offspring of an insane parent passes adolescence he has a very good chance of not inheriting the taint, &c., &c.

Dr Mott concludes his article by summarising the facts regarding similarity of inheritance and the influence of race.

GEORGE R. JEFFREY.

A LECTURE ON SANITY AND INSANITY. (Delivered at the (348) Royal Sanitary Institute on 24th April 1912.) F. W. MOTT *Brit. Med. Journ.*, May 11, 1912, p. 1053.

DR MOTT states that a person is insane who by virtue of mental defect or mental disorder no longer feels, thinks, or acts in conformity with the usages and customs of the society in which he lives. Although a person may be judged to be insane by his conduct, behaviour by itself without consideration of the social environment is an insufficient reason. Dr Mott lays stress on the importance of the early signs of insanity in cases of crime committed by general paralytics. He then deals with the question of crime and responsibility, points out how difficult it is to decide as to how far a person can be held to be responsible, and how a full consideration of what the man has inherited and what has happened since his birth can help us in coming to a decision. Dr Mott then discusses the cases of non-registered insanity—the chronic incurable inebriate, and the higher grade imbecile, both of whom swell the ranks of criminals and the unemployed. Such feeble-minded persons being fertile and procreative beget their like, and therefore the sooner they are registered, the better for society. In England and Wales the mental defectives not at present registered are actually more numerous than the registered insane. The author points out that the registered insane in London is 515 per 1,000 of the total population, and that insanity is thought to be on the increase, but for three reasons thinks that this great increase of insanity is more apparent than real: (1) The standard of sanity has been raised, many harmless idiots and weak-minded individuals at one time allowed to roam at large have been gathered into asylums; (2) the declining death-rate in registered lunatics, hence the accumulation in asylums of the chronic incurable cases; (3) the registration of senile cases, in order that they may be better cared for.

Neuropathic inheritance is next discussed, and facts cited from the notes of over 3,000 cases, strongly supporting the argument in favour of the importance of heredity as a cause of insanity. Dr Mott states that in studying every case of nervous or mental disease we should endeavour to ascertain what the individual was born with, ancestral inheritance (nature), what happened during development, after conception (congenital), and what happened at or after birth (nurture). Dr Mott then gives numerous examples of the signs of degeneracy and of the neurotic temperament, and attention is drawn to the importance of such signs. Under the heading, statistical data relating to Inheritance and Insanity, especially in relation to Anticipation, many interesting figures are given, showing, *e.g.*, the percentage of cases whose first attack

occurred within given age periods, the average age at the time of first attack in the parent and offspring. Dr Mott draws attention to the tendency of insane offspring to suffer with a more intense form of the disease, and at an earlier age, and points out the importance of this fact. He concludes his address by saying a few words about the "present day" study of mental diseases in this country. GEORGE R. JEFFREY.

(349) AN INQUIRY INTO THE OCCURRENCE OF AN INHERITED TENDENCY TO INSANITY IN THE INSANE OF A RURAL POPULATION. JAMES F. CORSON, *Journ. Ment. Sc.*, Vol. lviii., No. 251, April 1912.

THE statistics and observations presented in this paper refer to patients admitted to Bucks. County Asylum during a period of nearly eleven years. The author details his results under the following headings: (1) The proportion of cases with hereditary predisposition. An insane hereditary influence was present in 31·8 per cent. of cases out of a total of 1,131 cases admitted (males 27·4 per cent., females 36 per cent.). (2) The influence of insane heredity in different forms of insanity. Under this heading the tables show the highest percentage of hereditary cases in manic-depressive cases. In delusional insanity and dementia præcox there is also a high percentage, whilst in cases of senile dementia only a comparatively small number show an insane ancestral history. (3) The relative frequency of transmission of hereditary influence by father and mother respectively. From the tables, paternal transmission is seen to be greater than maternal (52·8 per cent. as compared with 42·4 per cent.). (4) Direct and collateral heredity. More cases showed insanity in the direct than in the collateral lines of ancestors. (5) The comparative susceptibility of the sexes to hereditary influence. Females showed the greater percentage. A greater number of males inherited from the father than from the mother; as regards the females, the numbers were approximately equal. (6) Cases with evidence of insanity in brothers and sisters only. Where two or more individuals of the same generation of a family are insane, similarity of sex is much more frequent than dissimilarity, and the proportions appear to be about the same as regards the sex. The author then discusses the age at which the first attack of insanity occurred in the hereditary and non-hereditary cases, the recurrence of attacks in manic-depressive insanity in relation to hereditary influence, &c., and concludes his article by detailing several pedigrees of patients in whom heredity appears from the ancestral history to act as a strong determining cause.

GEORGE R. JEFFREY.

A CONTRIBUTION TO THE STUDY OF PSYCHOGENESIS IN
(350) **THE PSYCHOSES.** B. GLUECK, *Amer. Journ. Insanity*, Jan. 1912, p. 371.

THIS paper, sixty pages long, is a useful study of the part played in certain insanities by psychogenetic factors. The author insists that hysteria is by no means the only psychosis in which mental factors are all-important as causative agents, and attempts to define the characteristics of other forms. The conclusions he appends are:—

1. There exist functional psychoses which do not belong either to the manic-depressive or præcox groups, and which develop in consequence of some strong emotional experience.

2. The development of a psychogenetic disorder does not necessarily presuppose the existence of a degenerative soil; psychogenesis is merely an indication of an individual's make-up, personality.

3. The symptomatology of the psychogenetic disorders may simulate any of the known psychoses, and is fashioned to a marked extent by occurrences in the immediate environment. The occurrence which incited the disorder plays an important rôle in the delusional formation of these individuals.

4. The psychogenetic disorders may be very important from the medical-legal standpoint, as most of the psychoses of criminals are psychogenetic in character.

5. The prognosis in these cases is good. The removal of the patient from the environment which provoked the mental disorder usually serves to put a stop to the process.

ERNEST JONES.

ON CERTAIN PROBLEMS PRESENTED BY CASES OF GENERAL
(351) **PARALYSIS WITH FOCAL SYMPTOMS.** MACFIE CAMPBELL, *Amer. Journ. Insanity*, Jan. 1912, p. 491.

THE author relates and discusses a considerable number of such cases, and adds the following conclusions:—

1. Cases of general paralysis may present focal symptoms which are more or less irrelevant to the general paralysis, *e.g.*, focal symptoms of traumatic origin.

2. Cases of general paralysis may present focal symptoms, which are based on a process that has a common origin with the general paralysis, *e.g.*, symptoms due to softening on the basis of a syphilitic endarteritis.

3. The evolution of a case, which at an early stage presents evidence of syphilitic vascular disease, into a case of general paralysis may be more or less rapid, and the clinical picture may represent a combination of more than one process.

4. The exact stage at which the onset of the general paralysis has begun is extremely difficult to determine, even with the help of modern serological methods.

5. The clinical picture alone is sometimes insufficient to enable a positive diagnosis to be made, the autopsy itself may not be decisive, the microscopical examination of the cortex is essential for a decision.

6. The pathological criterion of certain histopathological changes is invaluable, but the relation of these changes to the disease process is quite obscure.

7. Focal symptoms in general paralysis may arise on the basis of localised severity of the paralytic process.

8. In one case reported, of ten years' duration, there was remarkably little mental reduction, but the paralytic process especially involved the right hemisphere.

9. The relation of dementia to the right and left hemispheres respectively is a problem of interest, the study of which may further clinico-anatomical correlation.

10. In many cases of focal symptoms in general paralysis the examination of the brain reveals no adequate cause for the focal symptoms; this should warn one against being satisfied with the crude correlation of the lesions, which we do find in other cases, with the clinical symptoms, seeing that the latter may sometimes be found in the absence of such lesions.

ERNEST JONES.

(352) **SYPHILIS AND GENERAL PARALYSIS (First communication on the subsequent history of 4,134 cases of syphilitic infection). (Beitrag zur Lues-Paralyse-Frage (Erste Mitteilung über 4,134 katamnestisch verfolgte Fälle von luetischen Infektion).** E. MATTAUSCHEK and A. PILCZ, *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1911, viii., p. 133.

THE patients were officers in the Austrian army, who had been under treatment for syphilis between 1880 and 1900, and whose subsequent history had been traced down to January 1911. The results of the investigation were as follows:—

1. At least 4·67 per cent. of those infected with syphilis develop general paralysis.

2. The overwhelming majority of general paralytics consists of individuals whose syphilis has been unusually benign in spite of insufficiency or absence of treatment and of those who have had little or no treatment.

3. Although very thorough treatment of syphilis is not an absolute protection against the subsequent development of general paralysis, a comparison of a series of cases insufficiently treated

with a series subjected to chronic intermittent treatment showed a much smaller percentage among the latter.

4. The influence of treatment on the length of the interval between infection and the outbreak of general paralysis could not be shown.

5. A febrile infectious disease during the first years following syphilitic infection seems in a certain degree to diminish the probability of subsequent general paralysis.

J. D. ROLLESTON.

APHASIA IN GENERAL PARALYSIS AND THE CONDITIONS
(353) ASSOCIATED WITH IT. EDWARD MAPOTHER, *Journ. Ment. Sc.*, Vol. lviii., No. 241, April 1912.

THIS paper is based on the clinical and post-mortem observations in cases of general paralysis at Long Grove Asylum. The author points out that aphasia may co-exist with general paralysis: (1) as a purely accidental concomitant, as the result of trauma or embolism from valvular disease; (2) as a purely functional condition without demonstrable post-mortem lesions; (3) as a result of special localised intensity of the ordinary morbid process constituting general paralysis; (4) from subdural hæmorrhage; (5) from focal lesions caused by arterial disease associated with general paralysis. The author then details the clinical history and post-mortem findings of several cases which would be included in one or other of the above groups. GEORGE R. JEFFREY.

THE CLINICAL CLASSIFICATION OF GENERAL PARALYSIS
(354) OF THE INSANE. S. N. CLARK, *Journ. Nerv. and Ment. Dis.*, March 1912, p. 173.

A REVIEW is given of the cases of paralysis admitted into Kankakee Asylum in a period of two and a half years, 110 in all. There were only five of the depressed type; twenty-five were of the expansive or manic type. ERNEST JONES.

ACUTE DELIRIUM IN PSYCHIATRIC PRACTICE, WITH SPECIAL
(355) REFERENCE TO SO-CALLED ACUTE DELIRIOUS MANIA (COLLAPSE DELIRIUM). E. L. HANES, *Journ. Nerv. and Ment. Dis.*, April 1912, p. 236.

THIS is a lengthy general discussion of the subject of acute delirium. This paper will be concluded in a future number.

ERNEST JONES.

APPLICATION OF THE WORD-ASSOCIATION METHOD TO AN
(356) **ACUTE PSYCHOSIS.** C. F. READ, *Amer. Journ. Insanity*, April 1912, p. 671.

A SHORT study of ninety-eight word associations taken in a case of acute insanity. In spite of the patient's state of distraction and confusion investigation of the associations that showed "complex-signs" (Jung) was successful in penetrating to a considerable extent into the mental complexes determining the insanity. ERNEST JONES.

MENTAL DISORDERS ASSOCIATED WITH BRAIN SYPHILIS.
(357) F. M. BARNES, *Amer. Journ. Insanity*, April 1912, p. 633.

FOUR cases are described, and the following conclusions enunciated:—

1. Syphilis may act as a modifying force upon a psychosis developing upon the basis of a formerly active mental disorder.
2. Many types of psychoses may be simulated by mental disorders caused by syphilis.
3. There is no mental symptom complex characteristic of syphilitic disease of the nervous system.
4. Paralyses, pareses, and convulsive episodes may be absent in cases when mental disturbance is due to syphilis.
5. An intelligence defect of demonstrable extent is not an invariable accompaniment of cerebral syphilis.
6. The term syphilitic psychosis is to be used in the broadest sense to express the idea of the etiologic rôle which syphilis bears to the various psychotic states which may owe their origin to it.

ERNEST JONES.

SYPHILIS AND AMENTIA: A Preliminary Report of a Study of
(358) **1,050 Cases with Especial Reference to Serological Findings.** W. C. STONER and E. L. KEISER, *Cleveland Med. Journ.*, Vol. xi., No. 4, April 1912, p. 251.

OUT of 1,050 unselected cases of all grades of mental deficiency in the Ohio Institution for the Feeble Minded, only 83 (*i.e.*, 7·9 per cent.) gave a positive Wassermann reaction. One case of congenital syphilis gave a positive reaction at the age of 61. A. NINIAN BRUCE.

THE RELATION OF GASTRO-INTESTINAL TOXEMIA TO CIRCU-
(359) **LATORY HYPERTENSION IN THE MANIC-DEPRESSIVE FORMS OF INSANITY.** J. D. BALL, *Amer. Journ. Insanity*, April 1912, p. 661.

THE writer quotes various opinions as to the toxic origin of melancholia, but admits that "at the present time, and with the

methods now used, no definite conclusions have been reached." Eight blood pressure charts are appended to the article to show that the pressure varies much in this disease. ERNEST JONES.

MANIFESTATIONS OF MANIC-DEPRESSIVE INSANITY IN LITERARY GENIUS. E. C. REID, *Amer. Journ. Insanity*, April 1912, p. 595.
(360)

AFTER making a disorderly collection of quotations regarding the nearness of genius to insanity, the author discusses in detail various alleged evidences of manic-depressive insanity in De Quincey, Swift, Keats, the Lambs, Coleridge, Cowper, Ruskin, Burns, Francis Parkman, and Poe. It is plain that for such a difficult undertaking an author should be versed both in psychiatry and in literature. An instance of the present author's competency may be quoted from each domain: She treats the presence of depression as evidence of manic-depressive insanity, whereas it is well known that the depression of geniuses is more often due to psychoneurotic anxiety conditions. Then Swift's satirical suggestion that the children of the Irish poor be fattened and sold for food is taken seriously, and described as being evidently the production of an insane mind. ERNEST JONES.

TREATMENT.

A CASE OF DOUBLE PERSONALITY. BERNARD HART, *Journ. Ment. Sc.*, Vol. lviii., No. 241, April 1912.
(361)

THE author first of all points out how hysterical amnesia was successfully treated by hypnotism, and mentions certain theories which were employed in the investigation of this case. Prolonged and successful investigation revealed the presence of buried elements, and the author details what happened during the process of resuscitation. The secondary personality made its appearance during the process of resuscitation, and after hypnotism the author was able to produce at will either of the two personalities. As the analysis proceeded, the buried memories were gradually brought to the surface until finally the majority of the repressed elements had been recovered, and the second personality disappeared. The analysis was brought to a successful conclusion, and the patient has remained in a normal condition for some time.

GEORGE R. JEFFREY.

GALVANISATION OF THE BRAIN. R. T. CAESAR, *Brit. Med. Journ.*, May 11, 1912, p. 1063.
(362)

A MAN, aged 33, fractured his skull on the left side, above and in front of the ear. He was unconscious for three months, after

which he made a tedious return to partial recovery. He suffered from convulsions, his right arm was paralysed, and though his speech was good, any slight excitement rendered him incoherent. Removal of several pieces of bone produced no improvement.

A galvanic current was passed through the brain and forearm, the latter being immersed in a porcelain arm bath. The current varied from 2 to 30 milliampères, and was applied for fifteen minutes twice weekly for six weeks. The application was followed by stimulation of the affected muscles by means of the interrupted continuous current (100 interruptions to the second).

The convulsions ceased, and he was able to use his right arm well, to dress and feed himself without trouble, although he could not extend his thumb. Considerable increase in size of the arm was also noticed. He finally was able to return to work again.

A. NINIAN BRUCE.

FORCED FEEDING, WITH SPECIAL REFERENCE TO A CASE (363) CONTINUOUSLY FED BY THE NASAL TUBE FOR OVER NINE YEARS. DAVID BLAIR, *Journ. Ment. Sc.*, Vol. lviii., No. 241, April 1912.

AFTER sixteen years' experience, Dr Blair is of the opinion that forced feeding by means of the nasal tube is certainly not overdone in asylums, and that the comparative safety of this method is being more generally recognised. In proof of the efficacy of forcible feeding he describes first a case in the Lancaster Asylum, where a patient with the utmost resistive propensities to the taking of food was kept alive for more than nine years by the regular administration of small and carefully gauged quantities of nourishment; another in which not merely was life preserved by the "tube," but sufficient recuperative power was maintained to heal a fractured humerus; while in a third, a younger woman, where symptoms of phthisis developed and death seemed imminent, recovery set in under artificial feeding and open air treatment, so that the patient eventually left the asylum, presumably physically and mentally cured.

In Dr Blair's experience when natural feeding, though not altogether suspended, is more or less insufficient, regular and persistent employment of tube feeding is advisable. Dr Blair prefers the nasal method, and thinks that washing out the stomach before forcible feeding is a good routine practice; he further suggests that after passing the tube it is advisable to place the ear to the filler in order to ascertain that the point of the tube has not been deflected into the larynx. GEORGE R. JEFFREY.

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Review

of

Neurology and Psychiatry

Original Articles

MULTIPLE HETEROLOGOUS CEREBRO-SPINAL TUMOURS; ENDOTHELIOMATA OF CORD, GLIOMATA OF PONS AND CORPUS CALLOSUM.[1]

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(*From the Manhattan State Hospital, Ward's Island, N.Y.*)

(Plate 15.)

THE relative infrequency of multiple primary new growths of the central nervous system, even of the same type, would seem to sanction the report of a case with multiple new growths of different structure and position, one an endothelioma involving the thoracic cord, the others gliomata involving the pons and corpus callosum.

A SUMMARY.—The patient was a farmer of 31, temperate. At 30 he sustained a fall on the head, and about three months before death developed paraplegia. On admission to the Manhattan State Hospital, 7th October 1911, three weeks before death, he was quiet, drowsy,

[1] Read before the Section of Neurology and Psychiatry, New York Academy of Medicine, 13th March 1912.

and confused, complained of headache and nausea. He gave personal data to a limited degree, but was practically inaccessible to further intellectual tests, and became easily fatigued; he named objects correctly but did not always pick them out when named, and complied with simple commands, but finer aphasia and apraxia tests were not possible. Physically, the patient presented irregular pupils, the left larger than the right, and more sluggish in reaction to light; probable paralysis of the right external rectus; double papillœdema with three dioptres of swelling; diminished sensibility and slight flattening of the right face; spontaneous movements of the right arm were much limited and spastic, the use of the left arm was preferred; the patient was unable to sit up, stand, or walk; the degree of spasticity in the lower extremities varied; the knee jerks were diminished; sign of Babinski on the right, once observed on the left side; abdominal reflex absent on the left side; sphincters uncontrolled; several times on the right side tonic contractions of face and arm occurred with loss of consciousness; only once were convulsive twitchings noted in the left upper extremity. General sensibility was intact, except over the region noted. Blood and spinal fluid negative; pulse 100-120, lowered pitch sound over left frontal convexity; operation left frontal region.

The patient, V. C., was an Italian, 31 years of age, four years in U.S.A., male, white, single, labourer, temperate, no anamnesis.

From the commitment paper it was learned that the patient fell on his head one year before admission, and two months prior to his admission his lower limbs became paralysed.

When admitted to the Manhattan State Hospital, 7th October 1911, the patient was quiet, drowsy, and confused. A few days later a complete status was taken, and the following is a synopsis of the examination. The patient made a few fragmentary remarks, but the trend of his thought could not be ascertained. At times he would give expression to unintelligible utterances; some of his statements were contradictory, *e.g.*, at one time he declared that he was happy, and then again maintained that he was melancholy; his mood was one of depression and uneasiness. He was unable to give any account of the development of his sickness. He admitted that he suffered from headache and nausea, but denied that he had vomited. He said that he had been paralysed one month, and that he had been sick two months. (What day is this?) "August" (October). (What year?) "190 something." (What house is this?) "This place" (the rest of the answer was unintelligible). (What kind of place is this?) "I think it is an Italian place." He gave his age as 31, said that he was born in Italy, and that he had been four years in the U.S.A. He

denied venereal diseases or alcoholic excesses. His memory for the remote and the recent past was very poor. He became easily fatigued under examination, and this fact rendered him even more inaccessible to the usual intellectual tests. An aphasia examination was only possible to a limited extent; he named objects correctly; at times he failed to pick out objects which were named to him; he carried out simple commands, but Marie's three paper test was unsatisfactory. In repeating short sentences he omitted syllables and mispronounced words. Finer tests for aphasia and apraxia could not be made because of lack of proper co-operation.

He remained lying in bed; quite often he would pass into somnolence; he required constant care and attention, wet and soiled himself, was spoon fed.

Repeated physical examinations were made, the following being a synopsis of the results: smell could not be very accurately tested; of the various test solutions he recognised asafœtida. The pupils were irregular in outline and unequal, the left slightly larger than the right; the left pupil reacted sluggishly to light, and the right one responded promptly; there was some evidence of paralysis of the right external rectus. Double papillœdema (three dioptres) with retinal hemorrhages, yellow patches and œdema of the retinal tissues were observed by Dr W. A. Holden (visiting ophthalmologist). There was diminution to pin pricks on the right side of the face and the right side of the face was slightly flattened, but some special tests were carried out fairly well; when the right side of the face was pricked wincing was observed, but on applying the same stimulus to the left side of the face the patient flinched promptly; the corneal reflexes were present.

No striking anomalies of the auditory or vestibular nerves were noted; the Weber and Renné tests were not made, owing to lack of co-operation. Nothing of pathological significance was observed in the functions of the glossopharyngeal, vagus, hypoglossal nerves. Spontaneous movements of the right arm were very limited; in handling objects he would usually use the left hand; the left-hand grip, however, was relatively weak; no atrophy was observed. Spasticity in the upper extremities varied; usually the right arm was the more spastic. When the right arm was pricked with a pin he would make no effort to move it, but at the same time he would move the left arm. There was no tremor. Co-ordination tests could not be made. No astereognosis. Thermal

sense was intact. Muscular sense could not be tested. The reflexes of the upper extremities were present.

The patient was unable to assume an erect posture, nor was he able to sit or walk. As soon as he was placed on the floor he would flex his legs and fall. When the legs were pricked with a pin, no movement was noticed, but when both feet were pricked the patient would slightly move his legs. The degree of spasticity in the lower limbs was not constant, at times it was more marked in the left than in the right, at other times less marked. The knee jerks were diminished, and frequently were difficult to elicit; on one occasion the right one was slightly more active than the left; at no time were they exaggerated. Towards the end the knee jerks could not be elicited. Babinski, Oppenheim, and Gordon phenomena were constant on the right, and only once was there a suspicion of a Babinski reflex on the left. Muscular sense could not be determined; the thermal sense was satisfactory. The abdominal reflexes were at first present on both sides, later the reflex was present on the right side only. It was noticed on several occasions that the right side of the face and the right arm and forearm became rigid, and the patient lost consciousness. Once tonic contractions of the left upper extremity were observed.

The Wassermann reaction in the blood and cerebro-spinal fluid was negative, there was no increase of globulin; one lymphocyte per cubic millimetre (Dr D. M. Kaplan). There were no symptoms of disorder of the visceral organs, except for slight arteriosclerosis. The pulse varied between 100 and 120; the blood pressure was about 110.

In diagnosing the case, cerebral syphilis was considered on account of the multiplicity of symptoms, which were difficult to explain by one lesion, but the laboratory findings did not support this assumption; cerebral tumour seemed the most probable condition. The localising symptoms were rather vague, but on account of the preponderance of right-sided symptoms, the tumour was thought to be in the left frontal region; the possibility of a corpus callosum tumour was suggested, but the greater probability of the tumour being in the left frontal region was accepted.

Dr Charles Elsberg, consultant neurologic surgeon to the hospital, saw the patient twice. He confirmed the clinical findings and demonstrated tenderness with a low pitch sound over the left frontal region. He advised operation. 30th October 1911—the

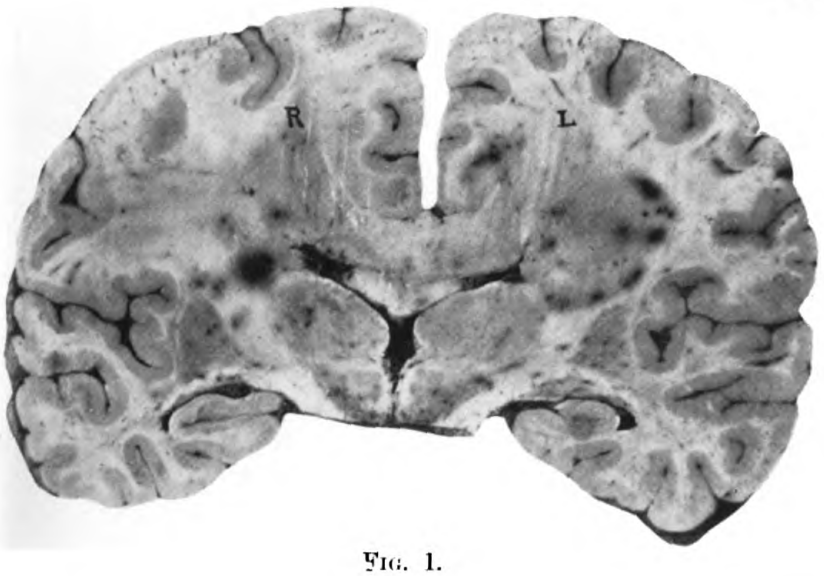


FIG. 1.

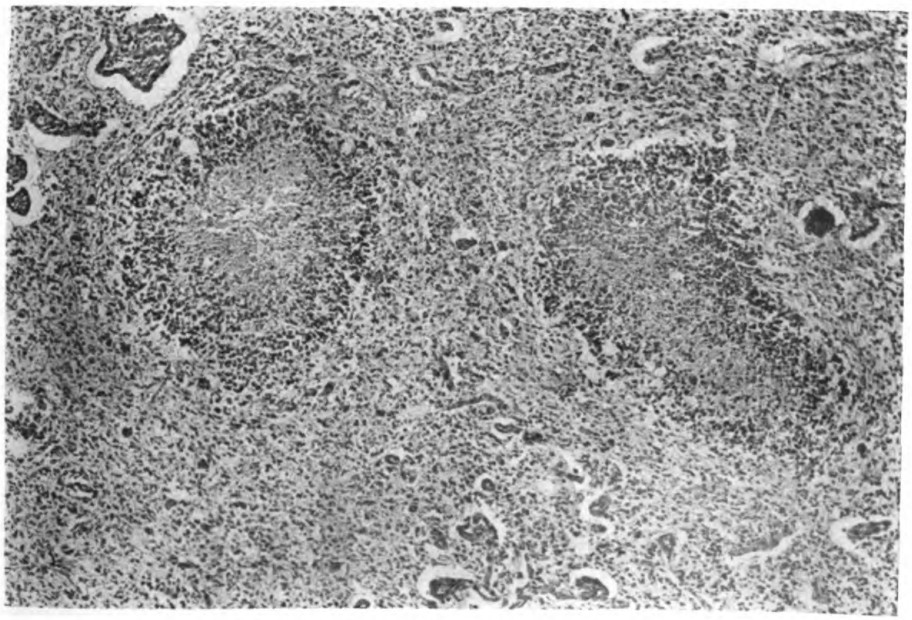
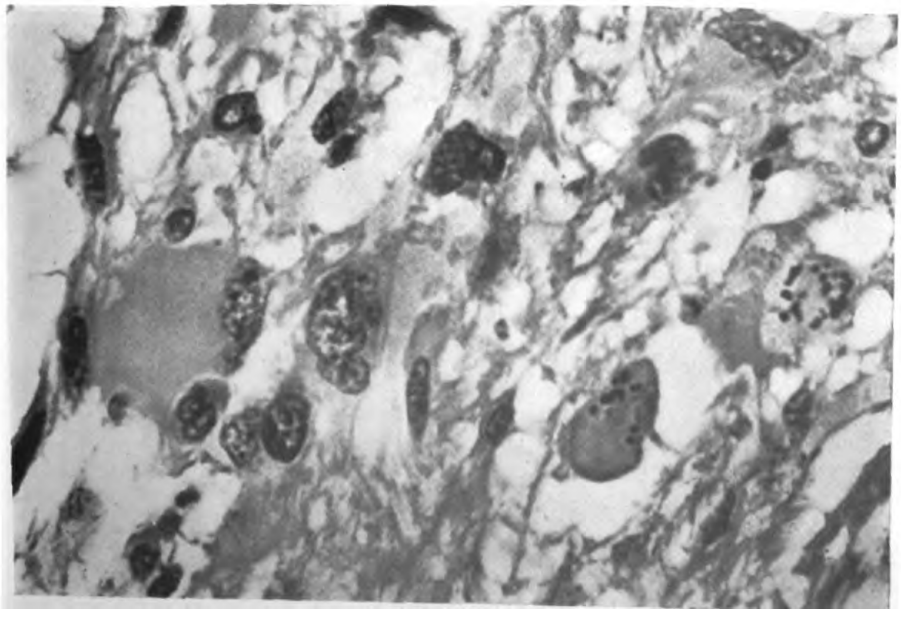


FIG. 2.



patient was operated upon by Dr Elsberg assisted by Dr Beers. The left frontal and anterior parietal regions were selected as the seat of operation, but no tumour was found. 1st November—the patient grew weak and died.

The autopsy was performed seventy-two hours post mortem. The subcutaneous tissues of the scalp were very œdematous, especially around the margins of the operation wound in the left Rolandic-frontal region. The operation wound appeared normal, but the dura bulged moderately, and beneath it there was about 2 oz. of blood clot. The pia was clear over the superior convexity and base of the brain, but over the left lateral convexity was quite hemorrhagic in appearance; the inferior third of the left anterior central convolution was gaping where an operative exploratory incision had been made. The right hemisphere appeared slightly larger than the left; this was most evident in the region of the frontal lobes. The right crus cerebri and the right side of the pons appeared slightly fuller than the left. The cranial nerves appeared normal, perhaps the right third and right sixth were somewhat compressed. The brain was cut transversely from before backward at intervals of about 1 cm. revealing a diffuse infiltrating growth without evident boundaries; longitudinally, the tumour extended almost the entire length of the corpus callosum, from genu to splenium, ventrally it extended into the subjacent fornix columns, and bilaterally into the marrow of both hemispheres, further into the right than into the left; in the right frontal and central regions it penetrated to the cortex which was only vaguely demarcated from the underlying, swollen, translucent grey marrow. A number of small hemorrhagic foci were scattered through the tumour area; in the left hemisphere one or two of these were referable to operative exploratory punctures (Fig. 1).

Transverse cuts through the mid-brain and pons showed the right crus and tegmental region swollen and translucent with obscuration of the normal markings. In the pons the right half was bulging and translucent on section, the projection fibre field and the entrance zone of the right fifth nerve were the areas most involved. The medulla oblongata appeared relatively normal.

The dura of the spinal cord appeared normal, the pial vessels were slightly congested. A diffuse new growth in the pia over the dorsal aspect of the cord, and extending from C_7 to Th_9, was

found. It somewhat resembled a high-grade productive leptomeningitis in the thoracic region, but in the lower cervical and upper thoracic region it was more localised and a fusiform thickening, several centimetres long and 4 to 5 mm. thick, overlay the dorsal columns of the cord opposite C_7-Th_1. The lumbar and sacral cord was free.

Microscopically: The cerebral tumour was a richly cellular glioma with indefinite boundaries. The centre of growth was in the callosal-fornix structures but extended bilaterally into the marrow of both hemispheres; in the mesial-frontal-central regions the growth infiltrated the cortex; moreover, it extended backwards and downwards through the right internal capsule, crus, and pons as described above. The cell types and varieties, the differentially staining neuroglia fibres, the plan and pattern of growth, and the relation to the mesoblastic tissues were characteristic of a glioma in all respects. It was moderately vascular and in several places small hæmorrhagic extravasations were seen.

The subpial tumour of the cord was of another type and apparently developed from the vascular, or more probably from the lymphatic, endothelium of the pia. The cells possessed vesicular, oval nuclei of varying sizes containing fine chromatin granules; mitotic figures with abortive forms were common and giant cells quite abundant. The cytoplasm formed a diffuse reticular network, but was negative to neuroglia and collagen fibril stains, which would further confirm the belief that the cord neoplasm was an endothelioma. There is no evidence of remote secondary degeneration in the cord as shown by Weigert's fibre stain, nor was recent degeneration demonstrated by the Marchi osmic-acid method; only a few fat droplets were found in the dorsal columns of the cord.

In gross correlation the evidences of increased intracranial tension appear to be the basis for the general tumour symptoms. The almost symmetrical involvement of the marrow of both cerebral hemispheres by way of the corpus callosum, somewhat more extensive on the right with bilateral invasion of the motor projection fibre field probably affecting the leg, arm, and face fibres with diminishing severity, would accord with the paraplegia, later amounting almost to a quadriplegia. The paresis of the right external rectus and the flattening of the right face may be referable to greater involvement of the right side of the medulla

and pons, or indirectly to greater pressure upon these nerves. Similarly the relative anæsthesia of the right face may be attributable to greater involvement of the sensory roots of the right trigeminus, and would explain in part the apparent hypersensitiveness on the left side of the head. The absence of any disorder of thermal sensibility, as well as the integrity of general sensibility, with the grade of tumour infiltration of the right side of the brain stem is remarkable. The spinal cord tumour appeared not to have affected injuriously either the dorsal roots or dorsal columns of the cord; in another similar but more advanced case, radicular symptoms were present.

Oppenheim, Bruns, Bristowe, Giese, and others agree that the local diagnosis of a corpus callosum tumour can be made with very little degree of certainty; general tumour symptoms, headache, vomiting, optic neuritis, apoplectiform or epileptiform symptoms vary in intensity but are seldom marked, but there is usually a grave disorder of intelligence, with stupor or somnolence; seldom any aphasic disorder; sometimes hemiparesis, not infrequently becoming bilateral and amounting to a quadriplegia. Unilateral cranial nerve symptoms are absent; in the case here reported they were probably due to the pons tumour.

We are under great obligation to Dr William V. Mabon, Superintendent and Medical Director of Manhattan State Hospital, New York, for permission to publish this case.

FIG. 1.—A transverse section through the brain, showing the corpus callosum and fornix swollen, the contiguous marrow in both hemispheres grey and hemorrhagic, and the line of demarcation between cortex and marrow obscured especially in right hemisphere.

FIG. 2.—A low magnification of the gliomatous growth in the corpus callosum, two rosette formations.

FIG. 3.—A relatively high magnification of the endotheliomatous growth in the pia of the spinal cord.

A CASE OF CEREBRAL AND CROSSED CEREBELLAR HEMIATROPHY.

By WILLIAM BOYD, M.D.,
Late Assistant Medical Officer, Derby Borough Asylum.

(Plates 16-20.)

SCATTERED through neurological literature there are several references to the interesting condition known as hemiatrophy of the brain, but the affection is of sufficient rarity and importance to justify the publication of an additional case, especially as the disparity between the two halves of the brain was greater, so far as I know, than in any of the cases hitherto described. Mott and Tredgold, in an excellent article on the subject in *Brain*,[1] point out that there are two great varieties of cerebral hemiatrophy. In the one there is associated atrophy of the opposite side of the cerebellum owing to the connections of the cerebellum with the opposite basal ganglia by fibres passing through the superior peduncle and red nucleus, for in this case the process commences in all probability in the basal ganglia, and the atrophy of the cerebrum and cerebellum are secondary. In the other the lesion is primarily a cortical one, due possibly to vascular occlusion occurring early in life, and the basal ganglia and cerebellum are unaffected. The present case belongs to the first variety. It is a curious fact that in all the cases in the literature which I have encountered the lesion has been a left-sided one.

The patient was an epileptic imbecile of a low grade, 26 years of age, who had been subject to fits all her life, and, having lately become unmanageable, had to be sent to an asylum. There was no history of epilepsy nor insanity in the family. She was said to have had a "stroke" of some kind at the age of 5 months, and since then the right arm and leg have been paralysed, but it is quite possible that the condition was a congenital one.

CLINICAL CONDITION.

She was a deformed, degraded girl, evidently of a very low type. There was marked lateral curvature of the spine, to the left in the dorsal, to the right in the lumbar region, and the chest was correspondingly deformed. The right arm and leg were shrunken, deformed, and contracted, the arm being flexed at the

FIG. 1.—Base of brain, showing atrophy of left half of cerebrum and right half of cerebellum.

FIG. 2.—Cerebellum, showing atrophy of right lateral lobe.

elbow, wrist, and fingers. The right foot was in a condition of talipes equino-varus. In short, there was a right hemiplegia with the usual sequelæ. The deep reflexes on the right side were much increased, and on that side there was plantar extension. Sensation was apparently normal. The ears were symmetrical, but the palate was high and narrow. It was noticed that the head was asymmetrical, the right side seeming larger than the left, but exact measurements were not made. Her mental condition was one of marked amentia, but she was able to speak, although in a childish fashion. During the next sixteen months she took numerous strong epileptic fits, in which there were no signs of localising value; during the post-epileptic state the plantar reflex was abolished. Finally she passed into a status epilepticus, developed congestion of the lungs, and died.

At the *post-mortem examination* the thoracic and abdominal organs were found to be normal, with the exception of the left kidney, which was malformed and greatly elongated.

The skull cap varied in thickness, the greatest thickness occurring in the frontal region. The frontal sinus on the left side was markedly distended and bulged inwards; consequently the anterior cranial fossa on that side was very small. The left middle cranial fossa was much encroached upon by a warty outgrowth of the petrous temporal, but the posterior cranial fossa was larger on the left side than on the right. These facts are of interest in view of the condition of the brain about to be described. The membranes showed no abnormality.

Macroscopical Description of the Brain.

The appearance of the brain when removed was very striking, for the left cerebral hemisphere was extremely shrunken, and appeared to be converted into a thin-walled cyst filled with fluid, whilst the right side of the cerebellum was considerably smaller than the left. The brain was weighed, measured, and photographed. The weights were as follows:—

Cerebrum.—Right hemisphere, 564 grms.; left hemisphere, 136 grs.
Cerebellum.—Right lobe, 39 grms.; left lobe, 66 grms.
Pons and Medulla.—19 grms.
Total Weight.—824 grms.

It will be seen that the ratio between the two halves of the cerebrum was as 4·1 is to 1, and between those of the cerebellum as 1·7 is to 1, whereas the corresponding figures in the most marked case described by Mott and Tredgold were 3·7 to 1 and 1·3 to 1.

The measurements were :—

	Right.	Left.
Maximum length - - -	17·5 cm.	13·9 cm.
Maximum breadth - - -	7·1 „	3·6 „
Temporal to occipital pole - -	12·6 „	10·0 „

Thus, the difference between the two sides is more marked in breadth than in length. Further, the greatest difference is in the frontal rather than in the occipital and temporal regions.

A detailed examination of the brain was then made with the following results :—

Cerebrum.—The right hemisphere appeared to be for the most part normal, except that the convolutions were of a rather simple type.

The left hemisphere, on the other hand, was only a quarter the weight of the right, showed a certain amount of microgyria in several regions, notably on the mesial aspect, and presented numerous irregularities of the sulci and gyri.

On the *external* surface it was found that the anterior horizontal limb of the fissure of Sylvius was absent, but there was an unusually large ascending limb, and the inferior frontal gyrus was very small in consequence; this gyrus was well developed on the right side. The middle frontal gyrus was broken up into three parts by two deep horizontal fissures which ran far into the precentral convolution. The fissure of Rolando was straight, showing no trace of genua. The superior temporal convolution was deep and well marked, and divided into two limbs, round the terminations of which were curved the supra-marginal and post-parietal convolutions.

On the *mesial* surface the callosal gyrus was divided into two by a long fissure running parallel to the calloso-marginal sulcus. The paracentral lobule and the precuneus were both considerably fissured.

On the *inferior* surface the only sulcus that was at all well-marked or continuous was the occipito-temporal. A deep con-

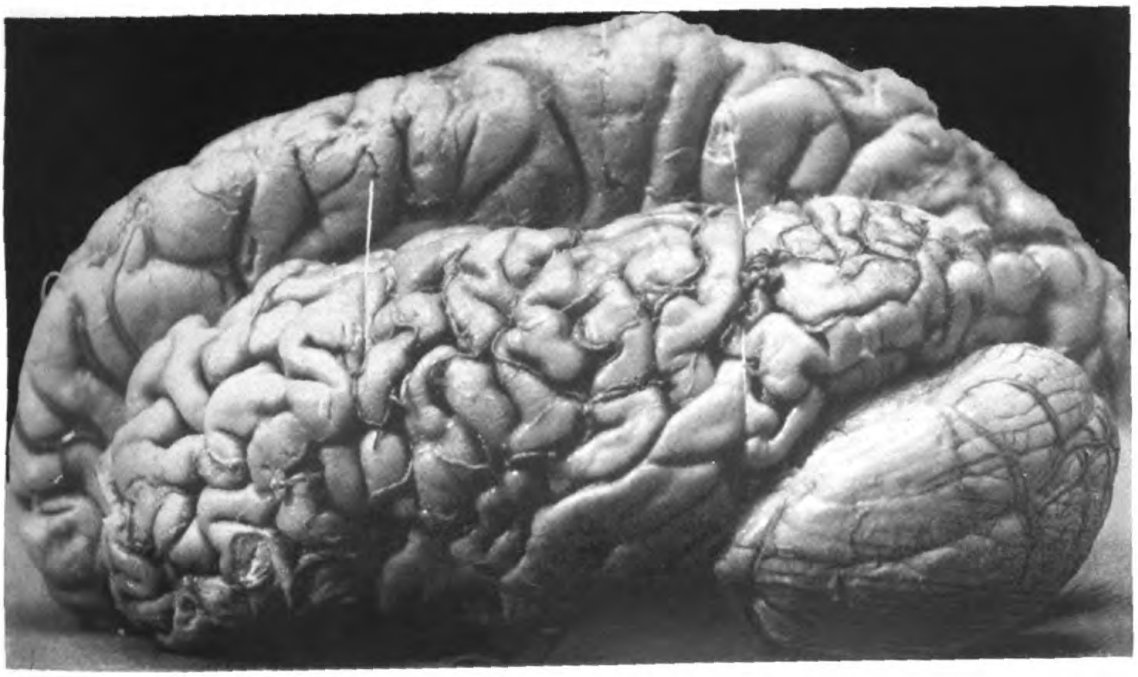


FIG. 3.—Lateral view showing atrophy of left cerebral hemisphere.

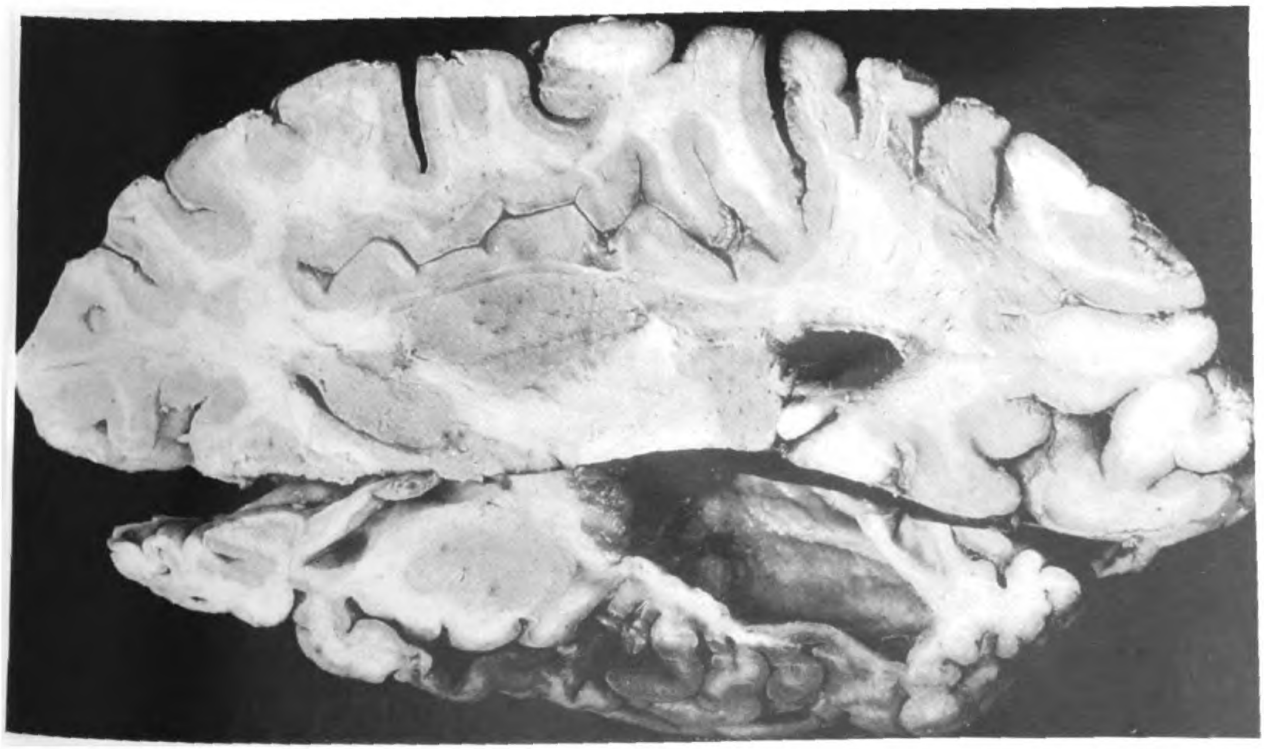


FIG. 4.—Horizontal section showing great dilatation of lateral ventricle, and small size of basal ganglia.

cavity, evidently caused by the large left lobe of the cerebellum, was plainly visible.

The corpus callosum measured only 1 mm. in thickness, showing that intercommunication between the two sides of the cerebrum was reduced to a minimum. The lateral ventricle, as is well shown in the horizontal section, was enormously dilated and occupied the greater part of the hemisphere, the mesial wall being reduced to a mere membrane.

On *section* it was seen that the grey matter on the left side was extremely thin, and that the white matter was curiously firm and dense, offering great resistance to the knife, and being much less vascular than on the opposite side. This peculiar denseness of the white matter on the affected side was also observed by H. C. Major in a case of paralytic idiocy.[2]

Cerebellum.—The right side was much smaller than the left, and on section presented the same thinning of grey matter and increased consistency of white matter—as was seen in the left cerebral hemisphere.

Medulla.—The right pyramid was somewhat larger than the left, but not so sharply defined.

The *spinal cord* was asymmetrical, the right side being smaller than the left.

Histology.

Cerebrum.—Sections of the motor area of both sides were examined. On the right side there was an approximation to the normal type. In many places the lamination of the cortex was distinct, the various layers were fairly well developed, and numerous Betz cells were visible in the polymorphous layer. In these places the nerve fibres of the white matter were normal in appearance. In several areas, however, there was an approach to the condition about to be described as being present in the left hemisphere, namely, a marked atrophy of the nervous elements together with a great increase in the neuroglia.

On the left side the appearance was very striking. There was no suggestion of lamination of the cortex, the only layer which could in any way be recognised being the molecular. The rest of the cortex consisted simply of a dense network of neuroglial fibres, amongst which were scattered numerous small round cells which did not take up the stain well. In most of the sections there was

no trace of pyramidal cells, but here and there a broken-down wreck of a nerve cell could be seen, and in a very few places there were little groups of apparently normal pyramids. Not a single Betz cell could be found in any of the sections. The white matter seemed to be composed almost entirely of neuroglial fibres, the network here being remarkably open in spite of the firm consistence mentioned above. There was no order about these fibres; they could be seen running in all directions and forming an irregular network. Blood-vessels were distinctly less numerous than on the other side.

Cerebellum.—The appearances seen in sections of the cerebellum may best be described by saying that the cortex presented two types, these types being present in different proportions on the two sides, and as a rule merging into each other with great suddenness, so that examples of both could be seen in the same field of the microscope. Type I. was the normal, and presented the usual characteristics, the molecular and granular layers being well stained and of normal thickness, and the cells of Purkinje on the whole well developed.

Type II. presented a marked contrast. The cortex as a whole was shrunken. The granular layer was continuous with that of the normal type, and at first sight apparently only differed from it in being very much thinner, consisting as it did of not more than from one to three rows of cells. On examining the molecular layer, however, it was seen that this consisted almost entirely of great numbers of clearly defined fibres running at right angles to the surface, fibres which were, of course, invisible in sections stained with methylene blue, but which were very well brought out by means of iron hæmatoxylin and methyl violet. These fibres, when traced back, could in a considerable number of instances be seen to be directly continuous with the cells of the atrophic granular layer. The cells themselves differed in the two types. In type I. they were small, round, deeply stained, and no cell body could be distinguished; they were the typical granule nerve cells of the normal cerebellum. In type II. they were much larger, and the cell body, which was fusiform in shape, formed a distinct mantle round the nucleus. By means of Ford Robertson's methyl violet method the structure of the nuclei could be made out with great distinctness. They were large, oval rather than round, lightly staining, and contained three or four little

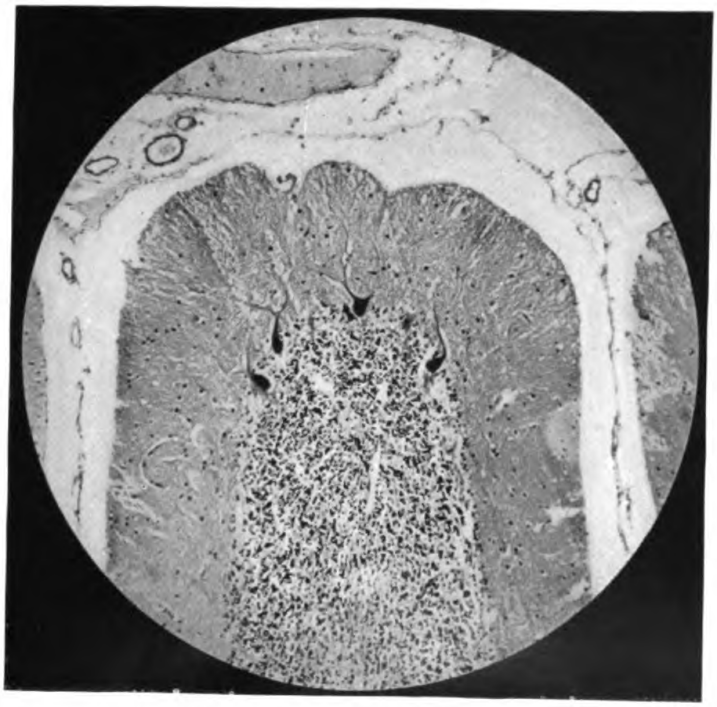


FIG. 5.—Normal cerebellar cortex, left side.
(Iron-hæmatoxylin.) ×60.

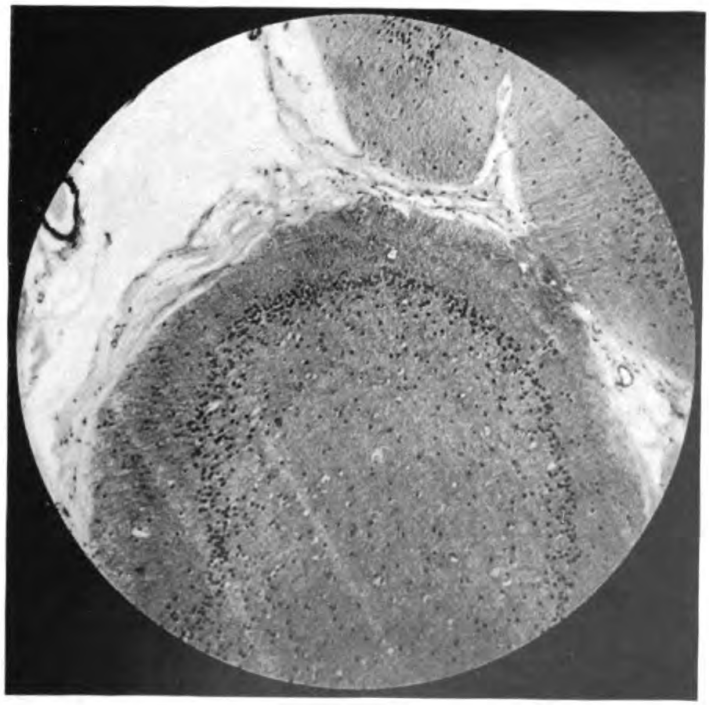


FIG. 6.—Abnormal cerebellar cortex, right side.
(Iron-hæmatoxylin.) ×60.

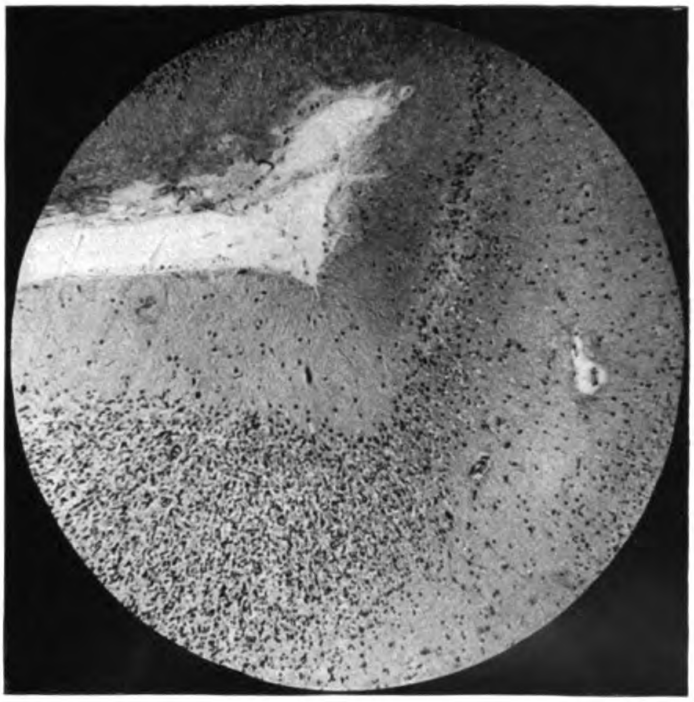


FIG. 7.—Cerebellar cortex, showing junction of normal and abnormal types. (Iron-hæmatoxylin.) ×60.

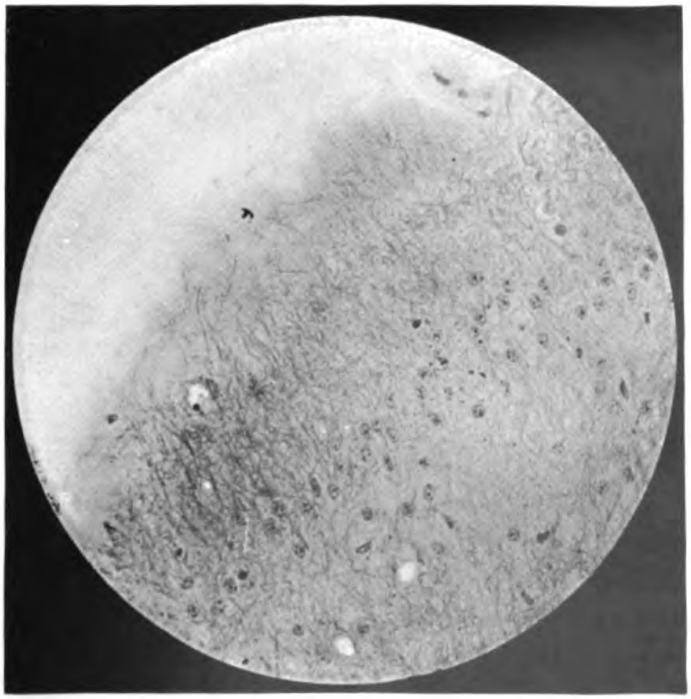


FIG. 8.—High-power view of abnormal cerebellar cortex. (Methyl-violet.) ×200.

dark granules which seemed to be quite distinctive of these cells. The atrophic granular layer abruptly ceased as a definite layer at the junction of the two types of cortex, but a few of the cells could be seen scattered here and there in the normal granular layer. There can be no doubt, therefore, that although the granular layer was continuous in the two types, the cells of which it was composed were very different in character.

The nerve fibres of the molecular layer of the cerebellum consist of (1) axons of the granule cells in the granular layer, (2) dendrites of the cells of Purkinje. Now, both these varieties of cells were absent in type II. It is probable, therefore, that the fibres observed in the molecular layer were neuroglial, and that the cells from which they were derived were of a similar nature. The microscopic appearances strongly suggested the same conclusion, for the fibres had the characteristic appearance and staining properties of neuroglia. Addison,[3] in a recent communication on the development of the cerebellum, states that the granular layer is derived from two sources: (1) cells of the outer granular layer (at first occupying the position of the molecular layer), which migrate inwards and become the small, deeply staining nerve granules; (2) large cells of the mantle layer with light staining nuclei which retain their form and probably become the neuroglia cells. It is possible that in the present case the outer granular layer has failed to develop, only the mantle layer elements being present in the granular layer.

A curious feature of type II. was a dark and very distinct line in the middle of the molecular layer, which seemed to be due to an intercrossing of two sets of the neuroglial fibres already described. Most of these fibres passed straight to the surface, but a considerable number could be seen proceeding tangentially. Mott and Tredgold describe similar fibres connecting the various folia, and consider that they, together with the cells from which they arise, are associative in function. Granted that these fibres and cells in the present case were neuroglial, it must be admitted that they were arranged in a remarkably regular manner, especially when compared with the chaotic network in the atrophic parts of the cerebrum.

In all the sections examined there was a curious lacunar or fenestrated appearance at the points of junction of the two types of cortex, as if a large number of the small granules had fallen

out or disappeared in some other way. Another feature which attracted attention was the presence in the normal molecular layer of a number of long fusiform cells, which looked like connective tissue corpuscles; these were entirely absent from the atrophic molecular layer. It is not improbable that they were nuclei in the walls of capillaries.

Where type II. was strongly marked there was not a trace of the cells of Purkinje. In places where the two types merged into one another, and even in folia composed entirely of type I., many of the cells of Purkinje were greatly degenerated, some of them being quite ghostly in outline. It will be seen from the above that the two types presented marked differences in the molecular layer, in the granular layer, and in the cells of Purkinje.

One might have expected each cerebellar hemisphere to be composed entirely of one type, but this was not the case. The left side (normal) consisted largely of type I., but a number of leaflets belonged to type II.; on the right side, on the other hand, type II. predominated, but approximations to type I. could be seen here and there.

Basal Ganglia.—Here again there were marked differences on the two sides, but again the morbid condition was not entirely unilateral. On the right side the greater part of the section was occupied by healthy nerve fibres, deeply stained by the Weigert-Pal method, but here and there distinct patches of gliosis could be seen, with complete absence of nerve fibres. In the intervening areas there were medullated fibres in all stages of dissolution. The grey matter appeared to be normal.

On the left side there were bundles of well-stained medullated fibres, and a few groups of healthy-looking nerve cells in the grey matter, but the section was composed for the most part of densely sclerosed tissue in which were scattered numerous small round darkly staining cells. The neuroglial overgrowth was specially well marked just under the ependyma, which was raised into little warty excrescences. This appearance, although more marked on the left side, was also present on the right.

The present case is of interest in view of the discussion which is at present taking place regarding the relationship of idiocy to imbecility. The old and classical doctrine that these two conditions are merely different degrees of the same process has been called in question, and it is now maintained by certain Continental

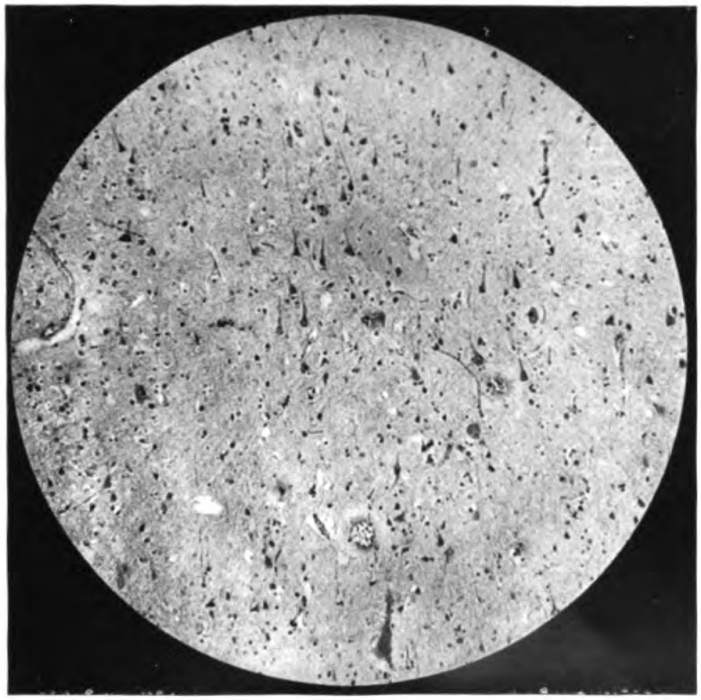


FIG. 9.—Cerebral Cortex, right side. (Aniline Black.) ×60.

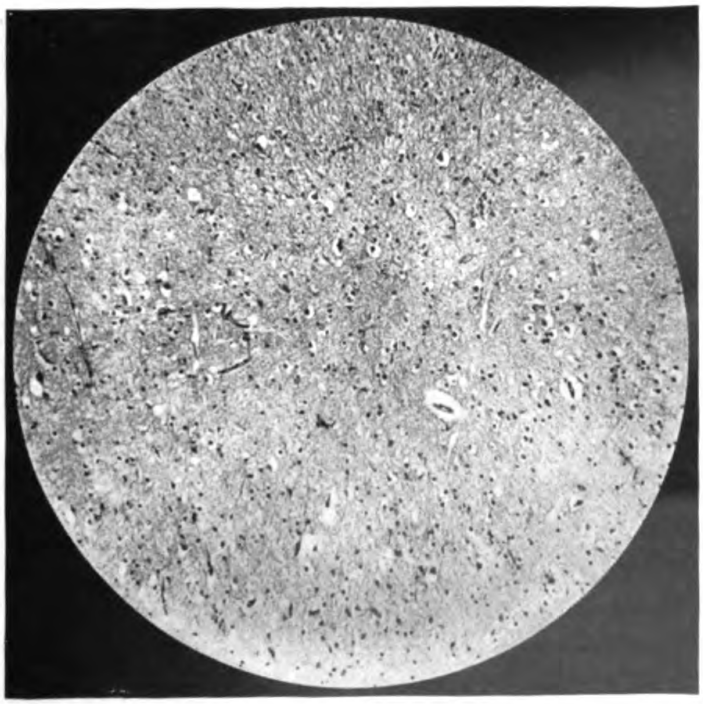


FIG. 10.—Cerebral Cortex, left side, showing absence of pyramidal cells, and neuroglial overgrowth. (Iron-hæmatoxylin.) ×60.

authorities that they are totally different both anatomically and etiologically, imbecility being a hereditary degeneration whilst idiocy is a cerebropathy acquired in intra-uterine or early extra-uterine life. Gross or microscopic lesions can be demonstrated in the idiot, but are absent in the case of the imbecile. Perhaps the most important factor in these infantile cerebropathies is the neuroglia, which is an active growing tissue responding readily to any form of irritation, and not merely subserving a passive function as in the adult. A small focal lesion which may have involved only a limited portion of nervous tissue may stimulate the active neuroglia to such an extent that a wide area becomes sclerosed and strangled. The appearances described above lead one to conjecture that some such process must have taken place to a large extent in the present case, especially in the basal ganglia and cerebrum. In the cerebellum the condition is more one of aplasia.

In addition to pathological differences there are certain fundamental psychical differences between the two conditions, and the mental state of our patient corresponded closely to that which is described as being characteristic of the idiot. She was dull, apathetic, and unimpressionable, and totally lacked the mental mobility and loquacity of the true imbecile. Instead of calling the case one of imbecility it would, therefore, be more correct to class it as one of infantile cerebropathy.

I wish to thank Dr. S. R. Macphail, under whose care the patient was in the Derby Borough Asylum, for permission to publish the clinical notes of the case, and Dr. Ford Robertson for much helpful advice regarding histological methods.

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2. H. C. Major. "A Case of Paralytic Idiocy with Right-sided Hemiplegia," *Journ. Ment. Sc.*, 1879, xxv.

3. W. H. F. Addison. "The Development of the Purkinje Cells and of the Cortical Layers in the Cerebellum of the Albino Rat," *Journ. Comp. Neurology*, 15th Oct. 1911, xxi., p. 459.

[The expenses in connection with the publication of the illustrations in this paper were defrayed by a grant from the Carnegie Trust.]

Abstracts

PHYSIOLOGY.

FURTHER RESEARCHES ON THE LIPOIDS OF THE PURKINJE
(364) **CELLS OF THE CEREBELLUM. (Nouvelles recherches sur les lipoides des cellules de Purkinje du cervelet (Seconde note).)** LAIGNEL-LAVASTINE et VICTOR JONNESCO, *Compt. Rend. de la Soc. de Biol.*, T. lxxii., No. 17, Mai 17, 1912, p. 750.

BY fixing nervous tissue in a mixture of Weigert's solution and formol to which 10 parts of glacial acetic acid have been added, the authors have obtained preparations showing a discontinuous lipoid membrane on the external surface of the nuclear membrane. This lipoid membrane is especially distinct in the Purkinje cells in the dog. The authors believe that this membrane is composed mainly of lecithin. W. CRAMER.

REACTIONS OF THE VASOMOTOR CENTRE TO SECTION AND
(365) **STIMULATION OF THE VAGUS NERVES.** T. SOLLMANN and J. D. PILCHER, *Amer. Journ. Physiol.*, Vol. 30, No. 3, June 1, 1912, p. 303.

DIVISION of both vagi stimulates the vaso-constrictor centre, partly by the interference with respiration and partly by traumatic irritation of the afferent vaso-constrictor fibres in the nerve. This is largely responsible for the rise of blood pressure.

Electrical stimulation of the afferent vagus in dogs produces vaso-constriction, resembling quantitatively the response to afferent sciatic stimulation.

Stimulation of the afferent vagus produces results which may be interpreted as vaso-constriction referable to acute cerebral anæmia. A. NINIAN BRUCE.

THE RELATION OF THE PINEAL GLAND TO THE REPRODUC-
(366) **TIVE ORGANS. (Ueber die Beziehungen der Zirbeldrüse (Glandula pinealis) zum Genitale.)** P. BIACH and E. HULLES, *Wien. klin. Wchnschr.*, J. xxv., No. 10, 1912, s. 373.

THE reproductive organs were removed from three to four weeks old kittens (male and female), kittens from the same litter being used as controls. When examined about seven months later an atrophy not only of the whole pineal gland was distinguishable, but also of the individual cells. The authors hold that the pineal gland is an internal secreting gland. R. A. KRAUSE.

STUDIES IN EXPERIMENTAL GLYCOSURIA.—VIII. THE
(367) **RELATIONSHIP OF THE ADRENAL GLANDS TO SUGAR PRODUCTION BY THE LIVER.** J. J. R. MACLEOD and R. G. PEARCE, *Amer. Journ. of Physiol.*, Vol. xxix., No. v., 1912, p. 419.

STIMULATION of the splanchnic nerves causes a hyperglycogenolysis, but this is not due to a hypersecretion of adrenalin into the blood, for, if the hepatic plexus be cut, no hyperglycæmia is produced. The hepatic plexus when stimulated can only produce a hyperglycogenolysis when the adrenals are intact. R. A. KRAUSE.

A QUANTITATIVE STUDY OF THE EFFECTS OF ADRENALIN
(368) **ON THE PUPILS OF RABBITS AFTER REMOVAL OF A SUPERIOR CERVICAL GANGLION.** Don R. JOSEPH, *Jour. of Expt. Med.*, Vol. xv., No. 6, 1912, p. 644.

ONE cannot estimate the quantity of adrenalin used from the amount of dilatation of the pupil. Small quantities, however, produced quite a definite effect. The author points out that this test for adrenalin always allows the other pupil to be used as a control. R. A. KRAUSE.

THE ALLEGED EXISTENCE OF ADRENALIN (EPINEPHRIN)
(369) **IN PATHOLOGICAL SERA.** G. N. STEWART, *Jour. of Expt. Med.*, Vol. xv., No. 6, 1912, p. 547.

THE sera of a number of pathological cases were examined for the presence of adrenalin by means of segments of rabbit intestine and uterus, but the results were negative.

Serum got from the adrenal vein of a dog was also negative, but if the adrenal gland was massaged a positive result was obtained. R. A. KRAUSE.

THE RELATIVE TOXICITY OF DOG'S NORMAL AND HYPER-
(370) **TROPHIED THYROIDS TO ANIMALS SUSCEPTIBLE TO THYROID FEEDING.** O. O. STOLAND, *Amer. Journ. of Physiol.*, Vol. xxx., No. 1, April 1912, p. 37.

A NOTE ON THE EFFECTS OF INTRAVENOUS INJECTION
(371) **OF THYROID PRESSURE LIQUID IN DOGS AND CATS** G. H. CALDWELL, *ibid.*, p. 42.

THE EFFECTS OF BLOOD TRANSFUSION IN PARATHYROID
(372) **TETANY.** CLARA JACOBSON, *ibid.*, p. 47.

THE COMPARATIVE TOXICITY OF DIFFERENT ANIMAL
(373) **TISSUES TO ANIMALS SUSCEPTIBLE TO THYROID FEEDING.** H. E. FRENCH, *ibid.*, p. 56.

FURTHER STUDIES OF THE ACETO-NITRILE TEST FOR
(374) **THYROID SUBSTANCE IN THE BLOOD.** H. O. LUSKY, *ibid.*, p. 63.

ATTEMPTS TO PRODUCE EXPERIMENTAL HYPERTHY-
(375) **ROIDISM IN MAMMALS AND BIRDS.** A. J. CARLSON, J. R. ROOKS, and J. F. M'KIE, *ibid.*, p. 129.

IN papers 1, 2, 4, and 6 it is pointed out that the thyroid contains a substance which is very toxic to certain animals, such as the guinea-pig and rabbit; the dog and cat show a marked resistance. Man is more susceptible to thyroid feeding than any other animal, the toxicity in guinea-pigs and rats was inversely proportional to the iodine content of the thyroids, of which the hypertrophied ones (from dogs) contained less than the normal.

Where the thyroid was given in toxic amounts the symptoms which are generally present are loss of body weight, gastro-enteritis, and diarrhœa; no tachycardia nor nervousness was observed.

The aceto-nitrile test of Hunt for the presence of the thyroid secretion was found not to be specific.

Experiments carried out on parathyroidectomised dogs showed that when transfused with the defibrinated blood of normal dogs, their life is somewhat prolonged. The effect on the tetany and on the depression symptoms is, however, not a very marked one.

R. A. KRAUSE.

PATHOLOGY.

THE STRIÆ ACUSTICÆ OF V. MONAKOW IN MAN. (**Striæ**
(376) **Acusticæ von v. Monakow beim Menschen.**) G. FUSE, *Neurol. Centralbl.*, Nr. 16, Aug. 16, 1911, s. 912.

THIS is the pathological-anatomical study of a case on the basis of which the author asserts that the striæ acusticæ of v. Monakow in men only show a partial, and not, as in cats, a total crossing. It cannot be stated whether the uncrossed portion is more strongly constituted than the crossed.

D. K. HENDERSON.

(377) **CROSSED ATROPHY OF THE CEREBELLUM FROM A TRAUMATIC LESION OF THE INTERNAL CAPSULE. (Un cas d'atrophie croisée du cervelet par lésion traumatique de la capsule interne.)** CLAUDE and LOYEZ, *L'Encéphale*, April 10, 1912, p. 345.

THE patient was a young man of 25, with severe left hemiplegia, the left arm being notably atrophied. The disease had resulted from a revolver accident at the age of 13, the bullet having penetrated the right hemisphere obliquely, from the mesial aspect near the frontal pole, by the caudate nucleus and internal capsule, to the posterior horn of the lateral ventricle. In a carefully worked-out case the authors describe the usual changes that are found in crossed cerebellar atrophies, and express the opinion that most of the atrophic defects are the results of transneural impairment of function *via* the nuclei pontis and the middle cerebellar peduncle. The value of the case consists mainly in the fact of the cerebral lesion being so limited in its extent.

S. A. K. WILSON.

CLINICAL NEUROLOGY.

(378) **A CASE OF ASTHENOBULBARSPINAL PARALYSIS (MYASTHENIA GRAVIS).** ALLAN M'LANE HAMILTON, *Journ. Amer. Med. Assoc.*, Vol. lviii., No. 21, May 25, 1912, p. 1561.

A SHORT description of the case of a girl, who, at the age of 12, began to suffer from weakness of the lower extremities, followed a few months later by difficulty in striking the keys of the piano. Six months later both arms became weak. There was drooping of both upper eyelids. At 14 years of age she showed general weakness of all voluntary acts, especially on the right side. Speech became clumsy, tongue moved awkwardly and with difficulty, with drooping of the lower lip and slight escape of saliva and escape of liquids from the nose. Facial muscles atonic, marked double ptosis with occasional diplopia, voice feeble, could not rise without assistance, and sometimes could not raise either arm. Muscles used most were soonest fatigued. Both knee jerks were absent, and there was no myasthenic electrical reaction nor reaction of degeneration.

Thyroid extract produced very bad results, but thymus extract thrice daily (5 grs.) led to apparent immediate improvement which was maintained. The expression became normal, the tongue straight, the voice stronger, and the various movements caused less fatigue although they did not return to normal. She is now 23 years of age, and can walk 150 yards without fatigue.

A. NINIAN BRUCE.

DELAYED MYOPATHY BEGINNING AS A PERIPHERAL TYPE.
(379) **(Myopathies tardives à début périphérique.)** COTTIN and NAVILLE, *L'Encéphale*, May 10, 1912, p. 401.

THE case here reported is that of a woman, aged 47, in whom the symptoms of muscular weakness and atrophy had commenced some years previously. The type was a non-familial, progressive myopathy, partially pseudohypertrophic, of very gradual evolution, beginning in the peripheral segments of the four limbs. The face was not involved. The only cases at all analogous are quoted by the author as having been reported by (1) Oppenheim and Cassirer, (2) Gowers, (3) Dejerine and Thomas. S. A. K. WILSON.

OPERATIVE TECHNIQUE FOR THE TREATMENT OF WINGING OF THE SCAPULA, FROM PARALYSIS OF THE SERRATUS MAGNUS AND SCAPULAR TRAPEZIUS.
(380) **(Paralysie de l'épaule par impotence du grand dentelé et du trapèze scapulaire. Technique opératoire pour le traitement du "scapulum alatum.")** MENCIÈRE, *L'Encéphale*, March 10, 1912, p. 235.

THE technique which the author describes has for its object the fixation of the scapula in such a position that the deltoid can function usefully and be capable of executing movements of elevation of the arm. He follows the original technique of von Eiselsberg (1898), but avoids the risk of injuring the intercostal nerves during the costo-scapular suture of the lower half of the vertebral border of the scapula. He gives this vertebral border a position of greater obliquity in relation to the spinal column, and after the operation fixes the patient's arm by an apparatus, so that the hand rests on the top of the head. In the case quoted this attitude was kept for sixty-five days, when the apparatus was removed. The result of the operation was a complete success, from the point of view of the object for which it was undertaken. S. A. K. WILSON.

A CASE OF HERPES ZOSTER OPHTHALMICUS. R. B. METZ,
(381) *Cleveland Med. Journ.*, 1912, xi., p. 300.

A MAN, aged 60, who had suffered from migraine for many years, developed right ophthalmic zoster, accompanied by neuralgic pain in the eye, on 11th August 1911. The skin vesicles were confined to the distribution of the frontal and naso-ciliary branches of V^1. A vesicle also appeared on the right cornea, rupture of the vesicle being followed by formation of a corneal ulcer. The skin vesicles dried, and the crusts separated in two weeks. There were then slight ptosis and proptosis of the right eye. On 6th September

the neuralgia was still severe and the ptosis was complete. There was also considerable diplopia from paresis of the superior rectus. Improvement occurred slowly, and by 3rd January 1912 the neuralgia had quite gone, and the ptosis almost disappeared. In March the skin of the right side of the forehead had a lowered sensibility and a slight trace of ptosis persisted, but double images were only infrequently seen. The right pupil was larger than the left, and responded less promptly. J. D. ROLLESTON.

POST-INFLUENZAL PARALYSIS OF SOFT PALATE. A. WYLIE, (382) *Proc. Roy. Soc. Med.*, 1912, v. (Laryngol. Sect.), p. 82.

THE patient was a healthy man, aged 30. In the second week of December he had an influenzal cold, congested throat, and fever. A few days before Christmas he had regurgitation of fluids through the nose, and on 7th January his speech became nasal. There were no diphtheria bacilli in the throat cultures, and the knee jerks and ocular symptoms were normal. When shown before the Laryngological Section on 2nd February, the patient presented bilateral paralysis of the soft palate with slight diminution of sensibility. The naso-pharynx was normal.

J. D. ROLLESTON.

A CASE OF TABES DORSALIS WITH ONE KNEE JERK ABSENT
(383) **AND THE OTHER BRISK.** H. FRENCH, *Proc. Roy. Soc. Med.*, 1912, v. (Clin. Sect.), p. 149.

THE patient was a costermonger, aged 59, in whom the right knee jerk was entirely absent, while the left was brisker than normal. Both tendo Achillis jerks were absent. There had never been any hemiplegia, nor did the occupation account for the condition as in the case reported by Burnand (*v. Review*, 1908, vi., p. 487).

J. D. ROLLESTON.

TWO CASES OF RECKLINGHAUSEN'S DISEASE WITH SPINAL
(384) **DEFORMITY. (Ueber zwei Fälle von multipler neurofibromatose (Recklinghausensche Krankheit) mit Verkrümmungen der Wirbelsäule.)** E. KOLEPKE, *Ztschr. f. Orthop. Chir.*, 1911, xxix., p. 367.

Case 1.—Cobbler's assistant, aged 20. No family history. Pigment spots present at birth. Skin tumours and spinal deformity first noticed at puberty. *Present condition:* marked left kypho-scoliosis in dorsal region with compensatory lordosis of lower dorsal and

lumbar vertebræ. Generalised pigment spots, tumours of skin and nerves. Disease progressive.

Case 2.—Watchmaker's apprentice, aged 15. Brother rickety and has two pigment spots. Patient's pigment spots were present at birth, numerous small skin tumours appeared in sixth year, some of which were removed at 13 and proved to be neurofibromata. Spinal deformity at 13. *Present condition:* well-marked left dorso-lumbar kypho-scoliosis. Numerous pigment spots, a few skin fibromata. Disease stationary.

In both cases the deformity was due to an osteomalacic process. The localisation was probably determined by the position assumed by the patients at their work. J. D. ROLLESTON.

A CASE OF PALPEBRAL NEURO-FIBROMA. (Un cas de neuro-
(385) **fibrome des paupières.)** ROHMER, *Arch. d'Ophtalmol.*, 1911, xxxi. p. 451.

A RECORD of the case described in Rabinovici's thesis (*v. Review*, 1911, ix., p. 446). J. D. ROLLESTON.

A CASE OF SUBACUTE COMBINED DEGENERATION OF THE
(386) **SPINAL CORD, DEMONSTRATING THE NATURE OF THE IMPULSES IN THE POSTERIOR COLUMNS.** THEODORE THOMPSON, *Brain*, Vol. xxxiv., Part iv., 1912, p. 510.

A MAN, aged 53, died of an illness of three months' duration. The symptoms were those of a severe progressive anæmia of gradual onset combined with sensory changes in the arms and legs. These latter consisted of marked loss of the sense of passive position in all four limbs, loss of appreciation of weights, of size and of form, and of the two compass points. Pain, heat, cold and tactile sensibility were normal. The gait was slightly ataxic and at times a plantar response of the extensor type was observed on the left side.

At the post-mortem examination a granulomatous ulcer of the stomach was discovered, the base of which was gangrenous and upon microscopical examination was shown to consist of necrosed tissue containing large numbers of long unbranched Gram-positive mycelial threads in addition to numerous micrococci bacilli. The organs showed the changes associated with a severe secondary anæmia.

A well-marked degeneration was found throughout the posterior columns of the spinal cord. There was a very slight degeneration of the pyramidal tract in the dorsal region.

AUTHOR'S ABSTRACT.

A CASE OF BROWN-SEQUARD'S PARALYSIS. (Ein Fall von
(387) **Brown-Séquard'scher Lähmung, hervorgerufen durch Meningitis serosa spinalis circumscripta.)** S. FLEISCHMANN, *Neurol. Centralbl.*, Nr. 15, Aug. 1, 1911, s. 840.

A CASE is fully reported which was due to a circumscribed serous spinal meningitis. The case was at first thought to be due to a tumour, but as an operation could not be immediately performed, vesicants were applied to the neck and the patient made a complete recovery.

The difficulties of differentiating such cases from tumours of the cord are emphasised. D. K. HENDERSON.

TWO CASES OF SPONTANEOUS HÆMATORRHACHIS, OR
(388) **INTRAMENINGEAL HÆMORRHAGE — ONE CURED BY LAMINECTOMY.** WILFRED HARRIS, *Proc. Roy. Soc. Med.*, Vol. 5, No. 5, March 1912 (Neurol. Sect.), p. 115.

Case 1.—Following a severe muscular effort there was sudden onset of pain in the lumbar region and down the front of the right thigh. The pain continued very severe for many weeks. A year later the pain spread to the left thigh, although not so severely. After sixteen months could just stand but had scarcely any power of movement of either ankles or toes. The right thigh, leg, and foot were constantly bathed in sweat, and the muscles were wasted. Both superficial and deep reflexes in lower limbs lost. Sphincters unaffected. Lumbar puncture gave 2 c.c. orange-coloured clear fluid.

Diagnosis.—Hæmorrhage below the level of the termination of the cord with subsequent chronic meningitis.

Operation.—Laminectomy of twelfth dorsal and first and second lumbar vertebræ. This revealed a purplish mass about 5 in. long surrounded by the nerve roots, cystic in one place, the cyst containing yellowish fluid. This mass was shelled out fairly easily, only one or two roots being injured in separating it. He recovered almost complete power of his limbs, the pain and sweating disappeared, the only ill effect being some anæsthesia of the right foot, probably from injury to the right fourth and fifth lumbar and first sacral roots at operation.

Case 2.—Sudden onset of pain at the nape of the neck when galloping, with nausea, giddiness, retching, and blurring of vision. Pain continued intense in neck and head for two days, then spread down to trunk and lower limbs, probably as the blood was carried downwards to the cauda equina in the cerebro-spinal fluid, but there was no pain in the arms or shoulders. The condition gradually improved until after three weeks the patient had practically recovered. J. H. HARVEY PIRIE.

PRIMARY TUBERCULOUS MENINGO-MYELITIS. (Sur la méningo-
(389) **myélite tuberculeuse primitive.)** BÉRIEL and GARDÈRE, *L'Encéphale*, April 10, 1912, p. 316.

THE patient was a young woman of 19, with a two months' history of progressive motor and sensory impairment of the lower extremities. The condition advanced to complete flaccid paraplegia with incontinence, &c., indicating a total transverse lesion of the lumbar cord. At the level of the eleventh and twelfth dorsal vertebræ the cord was found to be transformed into inflammatory sclerotic tissue, with numerous caseous nodules and abundant round cell infiltration. It is true that the tubercle bacillus was not actually found, but the naked eye and microscopical appearances were characteristic. There was no involvement of any of the bones constituting the spinal column. Cases of this description are rare. S. A. K. WILSON.

MENINGEAL HÆMORRHAGE IN TUBERCULOUS MENINGITIS.
(390) **(Les hémorragies méningées au cours des méningites tuberculeuses.)** D. ALTERMANN, *Thèses de Paris*, 1911-12, No. 250.

HÆMORRHAGIC tuberculous meningitis is characterised by the signs of tuberculous meningitis preceding and coexisting with those of meningeal hæmorrhage. In like manner lumbar puncture shows a more or less considerable number of leucocytes in which mononuclears predominate associated with the red cells. Two forms of hæmorrhagic tuberculous meningitis may be distinguished. The first, which is due to capillary rupture, is slow, progressive, and without ictus. Signs of meningitis predominate. The cerebro-spinal fluid is pink or yellowish, and contains only a moderate number of red cells. The other form is due to rupture of an ulcerated vessel, following tuberculous arteritis. In this case the hæmorrhage is sudden and even fulminating. The phenomena of meningeal compression mask those of meningitis. Unlike idiopathic meningeal hæmorrhage which often ends in recovery, hæmorrhagic tuberculous meningitis is always fatal. The thesis contains the histories of nine fatal cases, three of which are original. With the exceptiou of two cases in children aged 3½ and 5 years, all occurred in patients aged from 17 to 50 years (*cf. Review*, 1907, v., p. 855). J. D. ROLLESTON.

CHRONIC PURULENT CEREBRO-SPINAL MENINGITIS WITH
(391) **CACHEXIA AND CONVULSIONS. (Méningite cérébro-spinale purulente chronique, à forme cachectisante et convulsive.)** WEILL and G. MOURIQUAND, *Lyon méd.*, 1912, cxviii., p. 947.

A RECORD of a fatal case in a girl, aged 10 years, in whom the disease lasted ten months and was characterised by extreme

cachexia and frequent and severe convulsions. The cerebro-spinal fluid showed considerable polynucleosis but no microbes. Anti-meningococcic serum was of no avail. J. D. ROLLESTON.

LESIONS OF THE LIVER IN ACUTE MENINGOCOCCAL CEREBRO-SPINAL MENINGITIS. (Contribution à l'étude des lésions du foie dans la méningite cérébro-spinale aiguë à méningocoques.) M. GRIVAT, *Thèses de Paris*, 1911-12, No. 259.

(392)

THIS thesis is based on the study of fifty cases treated at the Hôpital Claude Bernard in Paris between 1909 and 1912, in patients aged from 5 to over 50 years. Forty-five showed definite and often painful enlargement of the liver, associated in every case with increase in size of the spleen. In some there were pre-existent hepatic lesions, mainly due to alcoholism. The enlargement of the liver appeared early, but was of transient duration. Anatomically it was due to congestion or to a slight degree of inflammation analogous to, though perhaps less marked than, that present in other infectious diseases (*cp. Review*, 1910, viii., p. 180).

J. D. ROLLESTON.

ACUTE PRIMARY PNEUMOCOCCAL MENINGITIS. (Sur la méningite cérébro-spinale aiguë primitive à pneumocoques.) L. BECO, *Ann. Soc. Méd.-Chir. de Liége*, 1912, li., p. 49.

(393)

A MAN, aged 45, was suddenly seized with symptoms of meningitis which proved fatal within three days, though transient improvement followed intra-spinal injections of anti-meningococcic serum. The cerebro-spinal fluid was purulent and rich in polymorphonuclears. Bacteriological examination showed numerous diplococci, chiefly intra-cellular, which cultural and experimental tests proved to be virulent pneumococci. J. D. ROLLESTON.

TWO CASES OF CEREBRAL PSEUDO-TUMOUR; SEROUS MENINGITIS AND ACQUIRED HYDROCEPHALUS. (Deux cas de pseudo-tumeur cérébrale: méningite séreuse et hydrocéphalie acquise). MARINESCO and GOLDSTEIN, *Nouv. Icon. de la Salpêt.*, Jan.-Feb. 1912, p. 47.

(394)

TWO cases of so-called pseudo-tumour, one with mainly cerebral, the other with cerebellar symptoms; in each case the pathological substratum was a serous meningitis, which in the second instance had occasioned an acquired internal hydrocephalus.

S. A. K. WILSON.

SCARLET FEVER COMPLICATED BY LEFT HEMIPLEGIA.
(395) **(Scarlatine compliquée d'hémiplégie gauche.)** H. LEROUX, *Bull. Soc. Péd. de Paris*, 1911, xiii., p. 431.

AN English boy, whose age is not stated, developed left hemiplegia followed by epileptiform convulsions on the seventeenth day of an attack of scarlet fever complicated by arthritis and endocarditis. About a month later when there was a slight improvement in the hemiplegia, typhoid fever ensued, and death took place from intestinal hæmorrhage. No necropsy. Leroux attributes the hemiplegia to endarteritis. J. D. ROLLESTON.

TYPHOIDAL HEMIPLEGIA WITH REPORT OF THREE CLINICAL
(396) **CASES AND ONE WITH NECROPSY.** E. M. WILLIAMS, *Amer. Journ. Med. Sci.*, 1912, cxliii., p. 677.

Case 1.—Man, aged 22. Left hemiplegia with aphasia and athetosis two months after onset during convalescence. Condition still present when patient was seen fifteen months later.

Case 2.—Male, aged 16. Severe attack of typhoid. Left hemiplegia during febrile period. Condition still present four years later.

Case 3.—Woman, aged 32. Right hemiplegia during febrile period. Condition still present four years later.

Case 4.—Man, aged 24. Left hemiplegia in third week of typhoid. Death five days later. Necropsy: ulceration of ileum; thrombosis in right Sylvian artery and softening of areas supplied by it.

Hemiplegia in typhoid fever is comparatively rare. Of 40 cases in which the sex is given, 70 per cent. were males and 30 per cent. females. Left hemiplegia occurred in 19 (44 per cent.) and right hemiplegia in 24 (56 per cent.). In 28 cases of right hemiplegia, aphasia was noted in 23 (82 per cent.), and in only 3 (18 per cent.) of the 17 left hemiplegics.

In 9 cases (24 per cent.) the hemiplegia occurred before the age of 10 years, before 20 in 10 (26 per cent.), and in 19 (50 per cent.) before 30.

Ten cases (24 per cent.) occurred in the first two weeks, 8 (20 per cent.) in the third week, 4 (10 per cent.) in the fourth, and 15 (40 per cent.) in convalescence. J. D. ROLLESTON.

TYPHOID POLYNEURITIS. **(Polynévrites éberthiennes.)** R. AFFI-
(397) CHARD, *Thèses de Montpellier*, 1911-12, No. 2.

POLYNEURITIS in typhoid fever is generally localised in the lower limbs, and is both motor and sensory. It usually occurs in

convalescence, especially after severe attacks. Pain is generally the first symptom; it is rarely severe, but may be extremely intense. The pathological condition is one of parenchymatous neuritis due either to the typhoid bacillus (Ausset) or to its toxins (Vincent). The prognosis is usually good, but in grave forms must be reserved. Treatment consists in subcutaneous injections of strychnine and galvanic currents. The thesis contains the histories of three cases, two of which are personal, in women aged 23, 25, and 47 years. In two the attack of typhoid had been severe, and in one moderate. J. D. ROLLESTON.

OPTIC NEURITIS AFTER WHOOPING COUGH. (Ein Fall von
(398) **Sehnervenerkrankung nach Keuchhusten.)** E. WIEGMANN, *Klin Monatsbl. f. Augenheilk.*, 1912, N. F. xiii., s. 460.

A WOMAN, aged 40, in convalescence from a severe attack of whooping cough of three months' duration, developed double optic neuritis. Syphilis, tuberculosis, and kidney disease could be excluded.

The condition was probably due either to a hæmorrhage into the sheaths of the optic nerves, or to the action of the toxins of the Bordet-Gengov bacillus upon the nerves.

J. D. ROLLESTON.

DIPHTHERIA RESEMBLING TETANUS. (Diphtérie spasmogène.
(399) **Type tétanos. Sans extérioration membraneuse.)** E. BITOT and P. MAURIAC, *Gaz. des Hôp.*, 1912, lxxxv., p. 753.

A MAN, aged 70, who had received a wound in the foot a fortnight previously, developed a condition resembling tetanus. Trismus, convulsive attacks, opisthotonus, and fever continued for three weeks in spite of antitetanic serum, large doses of chloral and morphia. On admission to hospital his general condition was grave, there was general and intense contracture, the urine was scanty, delirium was marked, and feeding was impossible. Cultures of the mouth and nose showed the presence of diphtheria bacilli, though no membrane was visible. Diphtheria antitoxin was given and after the second injection the convulsions became less frequent, the contracture diminished, and the urine became more plentiful. After the sixth injection, *i.e.*, sixteen days after admission, he was discharged cured.

Bitot had previously recorded a case of meningism of diphtheritic origin but without false membranes in which recovery followed injection of diphtheria antitoxin (*v. Review*, 1910, viii., p. 562).

J. D. ROLLESTON.

THE DIAGNOSIS OF CEREBRAL EMBOLISM. (**Zur Diagnose der Hirnembolie.**) HEINRICH HIGIER, *Neurol. Centralbl.*, No. 17, Sept. 1, 1911, s. 975.
(400)

ATTENTION is drawn to a group of cases of chronic valvular disease of the heart, especially cases of mitral stenosis, in which, after the occurrence of a cerebral embolus, all the objective auscultatory signs of valvular disease disappear. After weeks or months the auscultatory signs of valvular disease may again reappear, and thereby confirm the diagnosis of cerebral embolus. Two explanations are advanced for the temporary normal character of the heart sounds after the embolus: (1) the absolute rest in bed which has to be maintained; and (2) the pathological condition causing the abnormal auscultatory phenomena temporarily ceasing to exist.

D. K. HENDERSON.

ACUTE POLIOMYELITIS AND ALLIED CONDITIONS. E. F. BUZZARD, *Lancet*, April 6, 1912, p. 922.
(401)

THE author first of all puts in a plea for the transference of this disease from the section of diseases of the nervous system in a text-book of medicine into that of the specific fevers. The reasons for this are briefly: age incidence, seasonal exacerbations, endemic and epidemic manifestations, immunity from second attacks, specific virus, onset and course of the disease, contagion.

He then refers to the clinical symptoms of the early stages, calling special attention to feeble resistance of a child to examination, pain, and loss of reflexes. Kernig's sign is treated with some contempt, the writer stating that he never tests for it, as he believes that attempts to elicit it and hopes of being guided by it are responsible for more errors than successes in diagnosis. This is due to the fact that resistance to passive movement varies so much and depends on so many factors that, although the degree of passive resistance to passive movement should be tested for, it can only be gauged by long experience of handling limbs under many different conditions, and not by one feature as in this "sign."

Allied conditions briefly touched upon are encephalitis, and in adults Landry's paralysis, acute polyneuritis, and acute ascending myelitis.

J. H. HARVEY PIRIE.

HEREDITARY CEREBELLAR ATAXIA. (**Hérédo-ataxie cérébelleuse.**) TISSOT, *Nouv. Icon. de la Salpêt.*, Jan.-Feb. 1912, p. 71.
(402)

A MALE patient, aged 35. Paresed, spastic limbs, muscular atrophy, choreiform movements, reeling gait, a certain amount of labio-glosso-pharyngeal paresis, no defect in sensibility, no nystagmus

or skeletal deformity. Diagnosed as "hereditary cerebellar ataxia." Post-mortem, the cerebrum weighed 1,066 g., the cerebellum 130. Some leptomeningitis over the cerebrum. Spinal cord small, no degeneration beyond "reduced volume of direct cerebellar tracts without true degeneration." "No appreciable lesion of the cerebellum beyond diminution in the number of Purkinje cells, and a certain degree of atrophy of the white matter."

According to the author, "le syndrome est ici assez pur et complet." S. A. K. WILSON.

TUMOURS OF THE PONTO-CEREBELLAR ANGLE—INDICA-
(403) **TIONS FOR OPERATION AND SURGICAL TREATMENT. (Tumeurs de l'angle ponto-cérébelleux—indications opératoires et traitement chirurgical.)** GEORGE PASCALIS, *Rev. de Chir.*, Jan., Feb., March 1912.

THIS paper contains a useful account of the surgical treatment of extra-cerebellar tumours. The indications for operation, the technique of decompressive and radical operations as practised by different surgeons, the accidents that may occur during or after operation are given with very great detail.

There is an extensive bibliography, and an abstract of 113 cases, nearly all from the literature, on which the paper is based. The result of operation is given in each case.

P. W. SAUNDERS.

A NEW DECOMPRESSION OPERATION FOR THE BRAIN.
(404) W. H. HUDSON, *Annals of Surgery*, Part 233, May 1912, p. 744.

IT is here proposed that, in cases of unlocalisable brain tumours where decompression is necessary, the area exposed should be the posterior portion of the brain, so that the entire hemisphere may be displaced backward without damage to any local areas. The lower limit of this flap is the lower limit of the cerebral hemisphere behind, and the upper limit is where the skull begins to curve in a downward direction. The fissures and convolutions of the brain are not considered. If the growth has been localised in the motor region and not removed, the second flap is made over the posterior portion of the brain, thereby making two flaps. These points are illustrated by six figures, and a short description of the technique is given. The author claims that this operation can be done quicker and with much greater ease than the subtemporal operation. A. NINIAN BRUCE.

ARREST OF SEVERE EPILEPSY IN A CHILD AGED FOUR. J. S
(405) MACKINTOSH, *Brit. Med. Journ.*, April 20, 1912, p. 883.

THE child was a boy, who, up till two and a half years of age, was healthy and intelligent to the point of precocity. He then became irritable, easily frightened, and suffered from attacks of carbohydrate dyspepsia. A few months later he was twice bitten by a dog and suffered a severe nervous shock. His first epileptic fit occurred some months later, and lasted about ten minutes. The fits recurred three or four times daily. No focal lesion could be discovered. Potassium bromide (gr.v. t.i.d.) checked the fits for six weeks only. Removal of tonsils and adenoids produced no benefit, the seizures sometimes reaching thirty per diem. The carbohydrates were now reduced to a minimum, and sod. brom. gr. iv., stront. brom. gr. ii., and tinct. belladonna m.iv. prescribed. The fits rapidly diminished in intensity; he became entirely free from them for ten months, and his temperament became normal again. A year later the fits reappeared at bedtime and awaking. It was then found he had begun again to take porridge for breakfast. Stopping this, however, has not yet led to improvement.

A. NINIAN BRUCE.

ON DELIRIUM DUE TO BROMIDE. D. K. HENDERSON, *Edin. Med.*
(406) *Jour.*, June 1912.

THE case is reported of a man, 35 years, who, on account of attacks of petit mal, had been in the habit of taking regularly small doses of sodium bromide. For three weeks previous to admission to the hospital, however, he had been taking, at any rate, 240 grains of sodium bromide per day. On admission he showed an acute toxic delirium characterised by restlessness, confusion, hallucinations of sight and hearing, misidentifications, and retrograde amnesia. In addition he was covered with a marked bromide rash, his bowels were constipated, he had had difficulty in voiding his urine, his speech was thick, the pupils were sluggish, the tendon reflexes were exaggerated, and tremors of hands, facial muscles, and tongue were present.

Under eliminative treatment a rapid improvement occurred, and the patient was discharged as recovered in three weeks.

The cases of bromide intolerance reported by Casamajor, O'Malley and Franz and Honkeln have all raised the suspicion of general paralysis, and therefore the fact is emphasised that sluggish pupils, thick speech, exaggerated tendon reflexes, and tremors are not uncommon accompaniments of toxic states.

AUTHOR'S ABSTRACT.

ON THE FREQUENCY OF ACCIDENT NEUROSES. (Uber die Häufigkeit der Unfallneurosen.) H. STURSBERG, *Neurol. Centralbl.*, Nr. 16, Aug. 16, 1911, s. 908.
(407)

THE author has investigated 14,259 accidents, and has found that only 1·6 cases per 1,000 accidents develop a definite neurosis. His statistics are in harmony with those of Biss and Merzbacher, both of whom have emphasised how seldom it is for a neurosis to develop after an accident. D. K. HENDERSON.

TELEGRAPHIST'S CRAMP. H. THEODORE THOMPSON and J. SINCLAIR, *Lancet*, Vol. clxxxii., 1912, pp. 888, 941, and 1008.
(408)

THESE articles are largely an extract from the report of a Departmental Committee of the General Post Office on the subject by the medical sub-committee who investigated the questions under consideration, and contain a large amount of information on this particular craft neurosis.

Part I. deals with historical considerations, definition of telegraphist's cramp, and their methods of investigation. An important point brought out by their inquiry was that most of the cases were associated with the manipulation of the particular instrument known as the Morse key, and also the ability of the subjects of Morse cramp to perform actions other than Morse manipulation, and to use other instruments than the Morse. When the operator brought his case to notice early he could be usefully employed on other instruments, but when he persisted, in spite of his disability, the spasm extended to other actions beyond the special one of Morse sending.

Part II. deals with the varieties of disability in working the Morse machine. These may be divided into (*a*) those resulting from true cramp, (*b*) those due to fatigue, and (*c*) those arising from temperamental causes. With regard to true cramp it is shown to be the central nervous mechanism which is at fault.

Part III. gives the details of a number of special cases examined, and the suggestions made for the prevention of cramp. These deal firstly with the selection and tuition of candidates for telegraphic work; secondly with the organisation of the work, in which connection they propose limitation of the hours of Morse sending, and alternation of instruments; thirdly, with improvements in instruments and apparatus, especially the standardisation of the range of spring resistance in the keys, and the correction of faulty arrangements in desks and chairs.

Telegraphist's cramp is the result of two factors—one a nervous instability of the operator, the other the occurrence of repeated

fatigue during the complicated muscular movements required for Morse sending. This fatigue is relative to the nervous state of the operator, and not to the amount of work performed. Judicious selection of the staff only can eliminate the personal factor, the suggestions made may remedy the second.

J. H. HARVEY PIRIE.

VASOMOTOR NEUROSES WITH FEVER. (Beitrag zur Kenntnis (409) der mit Fieber einhergehenden vasomotorischen Neurosen.) O. ROTH, *Neurol. Centralbl.*, Nr. 16, Aug. 16, 1911, s. 898.

THE case of a woman, 38 years old, who on three different occasions was under observation, and on each occasion showed a marked increase of temperature and pulse-rate. The author proves that the fever was entirely dependent on certain vasomotor disturbances. He also draws attention to the fact that the blood findings in the case showed a condition similar to that found in Basedow's Disease.

D. K. HENDERSON.

ASSOCIATED MOVEMENTS. (Etude sur les mouvements associés (410) de l'homme normal et des malades.) NOICA, *L'Encéphale*, March 10, 1912, p. 201.

THE tendency of the new-born infant is to make similar synchronous movements with the two limbs. As the articular sense develops, even by the end of the third month of life, the child learns to make voluntary movements limited to one limb. If, however, the child should by chance be an idiot or imbecile, or remain an *arrièré*, or develop a hemiplegia, it will make bilateral movements each time it wishes to make unilateral movements, from want of practice: it will have associated movements from each side. If a hemiplegia develop in an adult, on the other hand, he will continue to make unilateral voluntary movements on the sound side; but on the affected side he cannot make such movements unless at the same time similar movements are executed on the sound side. Nevertheless with attention and practice he can learn to inhibit the associated movement on the sound side. If, however, the adult hemiplegia be one in which there is loss of the articular sense, as in a thalamic lesion, or as in tabes, the patient will present associated movements on the affected side, and these he can only partly inhibit by attention: if his eyes are closed he cannot prevent them at all.

S. A. K. WILSON.

HEMIATROPHY AND HEMIHYPERTROPHY. (Über Hemi-
(411) **atrophie und Hemihypertrophie.)** STIER, *Deut. Ztschr. f. Nervenheilk.*, Bd. 44, H. 1-2, s. 21.

Case 1.—A left-handed girl of 11 with slight but progressive hemiatrophy of the right side of the face. The writer passes in review various hypotheses of the condition, but will accept none. It appears that facial hemiatrophy is twice as common on the *left* side as on the *right*.

Case 2.—A boy of 12 with pronounced and advancing hemihypertrophy of the left side of the face, dating practically from birth and involving bones and soft parts alike.

Case 3.—A child of 5 with great hypertrophy of the right side of the face, involving soft and hard tissues equally, and dating from soon after birth.

Case 4.—An infant of 4½ months with progressive hypertrophy of the whole of the right side of the body, including the tongue. The author discussed at considerable length various views that have been advanced in regard to the causation and pathology of hemihypertrophy. It appears that hemihypertrophy is much more frequently met with on the *right* side than on the *left*—the opposite of hemiatrophy. The author adduces much interesting evidence to support his view that abnormalities and anomalies of a plus kind—hypertrophies (*e.g.*, accessory mammæ or mammillæ, &c.)—are much commoner on the right side of the body, in right-handed persons, whereas anomalies of a minus kind—atrophies (*e.g.*, syndactyly)—are commoner on the left side, in right-handed persons: the reverse is the case, according to the author's evidence, in left-handed persons. The former are situated in parts innervated from the leading (superior) hemisphere, the latter in parts supplied by the inferior hemisphere. S. A. K. WILSON.

RECKLINGHAUSEN'S DISEASE IN ASSOCIATION WITH ACRO-
(412) **MEGALY. (Sur la coexistence de la maladie de Recklinghausen avec l'acromégalie).** DE CASTRO, *Nouv. Icon. de la Salpêt.*, Jan.-Feb. 1912, p. 41.

THE patient, a man of 33, presented this combination. The question of accidental coexistence of two morbid conditions, or of pathogenic relationship between the two, is very briefly discussed. Cases of Recklinghausen's disease with symptoms referable to impairment of ovarian, suprarenal, and thyroid function have been described: the present is apparently the third recorded case in which the disease was associated with impaired pituitary function.
S. A. K. WILSON.

A CASE OF ACROMEGALY WITH AUTOPSY. (Nouveau cas
(413) **d'acromégalie avec autopsie.)** BALLET and LAIGNEL-LAVASTINE, *L'Encéphale*, Jan. 10, 1912, p. 1.

THE main points of this case may be summarised as follows:—

Enlargement of the sella turcica, hypertrophied heart (680 g.) atheromatous aorta. The hypophysis weighed ·75 g., and its dimensions were about 1 c.c. Apart from its obvious increase in size, the pituitary showed important changes on microscopical examination. The glandular part was enlarged and sclerosed: the majority of the cells were eosinophils, which in many instances completely filled the alveoli. Chromophobe cells were seen, but no cyanophil cells. In the pars nervosa a great number of cells showed pigmentary degeneration. The pars intermedia, sclerosed and congested, contained many colloid cysts of differing sizes.

In the right lobe of the thyroid was a cyst, about the size of a nut. The greater part of the left lobe showed very marked sclerotic changes (annular cirrhosis in various stages). The parathyroids were apparently normal. The suprarenals had a thickened capsule: the cortex was irregularly diminished in thickness: the medulla was the seat of some vacuolation. The ovaries were atrophied. The pineal was normal except for neuroglial plaques in its interior. The pancreas showed an interlobular annular sclerosis.

There was thus evidence of three main changes: (1) glandular hypophyseal hyperplasia, of eosinophil type; (2) overaction of thyroid and suprarenals; (3) atrophy of the ovaries.

S. A. K. WILSON.

THE OXYCEPHALIC SYNDROME, &c. (Étude du syndrome oxy-
(414) **céphalique, considéré dans ses rapports avec la diathèse rachitique et l'adenoïdisme.)** BERTOLOTTI, *Nouv. Icon. de la Salpêt.*, Jan.-Feb. 1912, p. 1.

THIS is a long paper which does not lend itself readily to abstracting. In the opinion of the writer, oxycephaly should be considered a lymphatic polyglandular dystrophy. In the oxycephalic syndrome certain of the glands of internal secretion are always affected. There is hypertrophy of the ganglionic plexus of the pharynx (Waldeyer's "lymphatic ring"): the thyroid is practically never normal, and there is hypotrophy of the sexual glands. Oxycephaly is characterised by two main symptoms: deformation of the cranium and a lesion of the optic nerves (optic atrophy): exophthalmos, strabismus, nystagmus, ophthalmoplegia, &c., if they occur, are secondary. There may, however, be oxycephaly without any

cranial nerve involvement at all. Oxycephaly is a syndrome primarily of the osseous system.

The author lays stress on important bony changes, more particularly on the base of the skull, recognisable by radiography. The middle cranial fossa is almost on the same level as the posterior cranial fossa: the sinuses (frontal and sphenoidal especially) are obliterated: the sella turcica is placed very deeply in the base: the sagittal and coronary sutures cannot be traced. The depression of the base constitutes a sort of "basilar lordosis": in cleido-cranial dysostosis, on the contrary, there is a sort of "basilar kyphosis." There is evidence of increased intracranial pressure, as well as of increase in osteogenic activity in the bones of the skull. The author indicates analogies between oxycephaly and craniotabes, and considers the actual pathogenic factor of the former to be rachitis. This causes an internal hydrocephalus or serous meningitis, a prodromal stage, followed by premature synostosis more particularly of the anterior part of the skull, a secondary osteitis. The alteration of the sphenoid which is so common in oxycephaly may impair the normal connections between the naso-pharynx and the pituitary body. It is probable that this may account for the constant occurrence of adenoids in oxycephaly. S. A. K. WILSON.

(415) **NERVOUS AND MENTAL CHANGES IN THREE PERSONAL CASES OF PRIMARY TUMOUR OF THE SUPRARENAL BODY: "SUPRARENAL VIRILISM" (Les troubles nerveux et mentaux dans trois observations personelles de tumeur primitive de la glande surrénale; le virilisme surrénal.)** GALLAIS, *Soc. de psych. de Paris*, March 21, 1912.

THE first case was that of a girl of 19, of normal antecedents, in whom menstruation began at the age of 13. A year later, painful dysmenorrhœa, with nausea and vomiting, occurred. From 14 to 17, the patient's muscular power increased very notably; her character changed, becoming masterful and violent; her sexual instincts also changed, there being an inversion towards the female sex. At the age of 18, complete amenorrhœa developed, and at the same time hypertrichosis of upper lip, chin, and lower extremities became evident. The facies became absolutely masculine. At the age of 19, however, a further change took place. The patient gradually wasted, and the lower extremities became œdematous; progressive asthenia developed, and the forearms and dorsum of the hands became pigmented. Some improvement ensued with administration of suprarenal extract. Later, mental symptoms in the shape of aboulia, melancholia, and suicidal ideas mani-

fested themselves. The patient died in her twentieth year. At the necropsy, the epiphysis and hypophysis were normal: the right suprarenal was normal: the left was the seat of a large typical epithelioma springing from the cortex of the gland, weighing 2 kg. ·500. There were metastases in the liver and lungs. The uterus was small and the ovaries atrophic.

The author describes two other more or less identical cases. One concerned a girl of 12 years, who at that age had already the development of an adult woman. When menstruation established itself she became much more masculine in appearance; general hypertrichosis set in (moustache, beard, &c.), and her muscular system developed considerably. A few years later, at the age of 18, general progressive adiposity was noticed. The clitoris hypertrophied, attaining the dimensions of the penis of a boy of twelve. The labia majora also hypertrophied. Sexual inversion was noted. After several months of increasing asthenia, emaciation set in, with palpitation, œdema, ascites, and not long after the patient died.

The third case was that of a handsome girl of 14, who looked four years older, and in whom the catamenia were established at 9½ years. Menstruation ceased at 13, however. At 14½ years her features gradually changed in appearance, and became extraordinarily masculine. A moustache appeared on the upper lip. General progressive adiposity ensued. The laryngeal cartilages became prominent on the profile of the neck. The skin thickened and became darker, and the nickname of "the panther" was given to the girl by those around her. Her character also changed: she became authoritative and even brutal. Mental symptoms supervened, and emaciation set in, and after a total illness of some twenty months' duration, the patient died.

It is unfortunate there is no record of a necropsy in either of the latter two cases, but the clinical picture is striking, and the similarity of all the cases is very suggestive.

S. A. K. WILSON.

SCLERODERMIA AND RAYNAUD'S DISEASE. (Observation d'un (416) **cas de sclérodermie avec syndrome de Raynaud.)** L. LAVUELLE and A. LEROY, *Ann. Soc. Méd.-Chir. de Liége*, 1912, li., p. 33.

A NEUROPATHIC laundress, aged 42, presented the signs of syncope and asphyxia in her fingers resembling Raynaud's disease. A few months later patches of sclerodermia appeared in the face producing a close resemblance to facial paralysis, and then in the upper limbs, trunk and lower limbs, with predominance of the lesions on the right side and in the upper limbs. From the onset the patient

suffered from irregular and scanty menstruation and rheumatoid pains. The urine was of low density and contained a trace of albumen. No benefit was derived from continuous currents, but immediate improvement followed the administration of thyroid tabloids. During the thyroid treatment a zosteriform eruption appeared in the second, third, and fourth right intercostal spaces.

J. D. ROLLESTON.

DENTITION AND INTERNAL SECRETION. (**Dentition und innere Sekretion.**) ARNOLD JOSEFSON, *Neurol. Centralbl.*, Nr. 15, Aug. 1, 1911, s. 834.
(417)

THE cases of three children belonging to the same family are reported, each of whom had fewer teeth than normal. Shortly after treatment with thyroid extract was started the growth of teeth in the two older children rapidly increased; in the third child there has as yet been no improvement. From the results of treatment of these cases the author concludes that dentition anomalies depend upon an innate deficiency of internal secretion.

D. K. HENDERSON.

SLEEP AND SOMNAMBULISM. BERNHEIM, *L'Encéphale*, April and May 1912, pp. 305 and 417
(418)

BERNHEIM'S conclusions may be given as follows:—

Deep sleep is characterised by the complete suppression of cerebration, with unconsciousness, supervening spontaneously as a periodic physiological process.

Dreams are due to the automatic activity of the imagination, not suppressed by the control of the active reasoning faculties.

The mere occurrence of dreams is indicative of a certain amount of cerebral wakefulness. The greater the intensity with which these dreams are perceived by the individual, the more likely are they to cause associated phenomena to develop such as nightmares, movements of defence, &c.; the more active the dream, the greater is the active consciousness of the individual; a dream in action, exteriorised and realised by the subject with full physical and psychical initiative, indicates a brain awakened by the action of the dream.

Sleep produced by suggestion, if it is genuine and deep, is accompanied by unconsciousness, with purely reflex reactions. Hypnotic phenomena, catalepsy, "hallucinability," suggestibility, &c., requiring a cerebral and corporal rational activity, with consciousness, imply the awakening of the active faculties of the brain.

Active suggestion, revealing itself by acts, locomotion, ideation, hallucinations, constitutes somnambulism. This condition can be produced in certain individuals either in sleep or in the waking state. It may be spontaneous, appearing in sleep, or it may ensue, in the waking life, on certain emotional cerebral shocks, after attacks of hysteria and epilepsy, or traumatism. Attacks of somnambulism may be followed by amnesia, complete or incomplete. In induced somnambulism the memories can always be reawakened. The frequent repetition of attacks of somnambulism, the individual's life being thus divided into a normal and a somnambulistic section, constitutes the phenomenon of double consciousness or double personality.

These variable states of consciousness exist to a certain degree in many normal individuals, without amnesia.

S. A. K. WILSON.

THE VESTIBULE AND THE PERCEPTION OF SPACE. F. L. (419) GOLLA, *Proc. Roy. Soc. Med.*, Vol. 5, No. 5, March 1912 (Neurol. Sect.), p. 123.

THIS paper records certain experiments in studying the effects of excitation of the vestibular apparatus by rotation in a specially designed chair with a screen fixed in front of the subject. The visual factor was eliminated by blindfolding. To determine the knowledge of the spatial relations of the area immediately surrounding the body, parts of the body were first touched and the subject requested to mark on the screen the corresponding point as if his image were projected on it. The mesial plane was found to be the only one known at all accurately. The patient was then rotated in the chair in one or other direction at uniform speed; when stopped the points previously projected were again touched and the patient asked to project them on the screen. During the phase of negative after-vertigo the projection was always towards the side from which he had been rotated. Muscular sense during this period was quite unimpaired, so that the only other factor responsible for the erroneous projection must be the vestibule from which the vertigo had origin.

To test disturbances in the vertical plane the head was fixed sideways, and after rotation it was straightened and projection tested in the same manner. If with the right ear uppermost the chair was rotated clockwise, the error of projection was in the upward direction, if anticlockwise, downwards; and the converse with the left ear uppermost.

Several cases of middle-ear disease with persistent vertigo showed lateral displacement of projection—in three there was

definite subjective rotation towards the side to which projection was displaced.

Cases of cerebellar and extra-cerebellar tumours were tested. In a case with both vestibules removed projection was very good—evidently muscular sense had taken the place of the vestibules—and after rotation there was no vertigo, nystagmus, or error of projection.

Out of the deaf mutes, four showed complete absence of vertigo after prolonged rotation, and their projection, which was fairly accurate before, remained undisturbed. Amongst the other ten who showed signs of possessing vestibular function vertigo was very hard to elicit by rotation in three cases, and projection after long rapid rotation was only slightly disturbed. In the remainder spatial perception appeared to be normal.

J. H. HARVEY PIRIE.

TWO CASES OF PRECOCIOUS CEREBRO-SPINAL SYPHILIS, ONE OCCURRING AFTER SALVARSAN, THE OTHER WITH POST-MORTEM FINDINGS. A. MYERSON, *Boston Med. and Surg. Journ.*, 1912, 1, p. 595.

(420)

Case 1.—Man, aged 20. Chancre 1st April 1911. Intravenous injection of salvarsan, 0·6 gm., 20th April. No secondaries. Left hemiplegia and aphasia in middle of May. Wassermann positive in spinal fluid and serum. Immediate improvement under mercury salicylate injections. Headache and diplopia in September probably owing to neglect of treatment. Complete recovery in a month under mercury injections and potassium iodide.

Case 2.—Man, aged 20. Chancre one year previously. Had been taking regularly some arsenic preparation, not salvarsan. For last month had had headache, delusions, numbness in limbs, and loss of bladder control and sexual power. Death preceded by convulsions. Necropsy showed meningitis and periarteritis, more marked in cord than in cortex, and changes in the nerve cells. No spirochætes in cord or cortex. J. D. ROLLESTON.

"606" AND THE OPTIC NERVE. (**606 et nerf optique.**) G. PEYTHIEU, *Thèses de Toulouse*, 1911-12, No. 1004.

(421)

FROM a study of the literature the author arrives at the following conclusions:—

1. "606" is harmless when the optic nerve is healthy, and also in optic neuritis, for the so-called nerve recurrences are merely cases of relapsing syphilitic neuritis.

2. "606" is an excellent remedy for syphilitic optic neuritis by reason of its efficacy, innocuity, and rapidity of action. But it must be regarded as an exceptional method, and must always be followed by mercurial treatment.

3. Some authors have noted improvement from its use in optic atrophy, but observations of this kind are too few and too recent to be of much value. J. D. ROLLESTON.

THE OCCURRENCE OF A POSITIVE WASSERMANN REACTION
(422) **IN CASES OF LEAD POISONING.** CYRUS W. FIELD, *Journ Amer. Med. Assoc.*, Vol. lviii., No. 22, June 1, 1912, p. 1681.

THE Wassermann test in 12 cases of lead poisoning proved positive in 8 and negative in 4. Of the 8 positive cases, 1 had contracted syphilis thirty years previously, 1 entered hospital semi-comatose, dying shortly after, and a third had a history of five miscarriages. All the 5 remaining cases denied syphilis and were typical cases of lead poisoning. They all showed marked improvement with potassium iodide, strychnine, and catharsis.

Of the 4 cases which proved negative, all occurred in painters and were chronic; 1 admitted syphilis forty years previously.

The author is inclined to think that a positive Wassermann reaction in lead poisoning need not necessarily denote a syphilitic infection. A. NINIAN BRUCE.

THE VALUE OF THE WASSERMANN REACTION IN THE
(423) **DIAGNOSIS OF HEREDITARY SYPHILIS. (Valeur de la Réaction de Wassermann dans le Diagnostic de l'Hérédo-Syphilis.)** EUG. ANDRONESCO and F. SARATZEANO, *Presse Méd.*, No. 27, April 3, 1912, p. 271.

THE serum of 13 mothers and 22 children, among whom were many with no syphilitic manifestations to suggest the condition, was examined for the Wassermann reaction. The original Wassermann technique was employed, syphilitic liver extract as antigen, and a rabbit sheep hæmolytic system used. Blood was obtained from the patient by venous puncture or by scarification with cupping in the lumbar or dorsal regions. The reaction was positive in 18 out of the 22 children, 13 nursling out of 14 cases were positive (92 per cent.), in children from 1 to 10 years 4 out of 4 cases proved positive (100 per cent.), while in late hereditary syphilis 1 case was positive out of 4. The serum of the mothers was positive in 13 cases out of 14 (92 per cent.). In two instances

the father's blood was examined and in one case was positive. The authors conclude that the Wassermann reaction still further demonstrates the accuracy of Colles' law. Mothers and children react to the reaction as in fully developed acquired syphilis, and, in the case of mothers who present no visible lesion, the reaction is more intense in the child's serum than in hers. The authors found, contrary to the observations of Knöpfelmacher and H. Lehndorf, that the influence of repeated pregnancies did not diminish and eventually cause disappearance of the Wassermann reaction in the mother's blood; in one case they found the serum positive four and a half years after the last pregnancy, and the woman presented no active symptoms of syphilis. The value of the reaction as a means of diagnosis in the obscure diseases of children is obvious. WINIFRED MUIRHEAD.

THE CEREBRO-SPINAL FLUID IN PELLAGRA. (Le Liquide Céphalo-Rachidien dans la Pellagre.) PIERRE BOVERI, *Presse Méd.*, No. 29, April 10, 1912, p. 291.

(424)

THE author has examined the spinal fluid in cases of pellagra showing nervous or mental symptoms. As he points out pellagra is a disease of the poor peasant when food is not only deficient but defective, and consists largely of maize. Headaches, vertigo, pains in the back and limbs are common nervous symptoms. The spinal fluid was always clear, the tension sometimes raised and, if markedly so, was always associated with a rise in the proteid content, and with a slight leucocytosis; Noguchi's and Nonne's reactions were positive. The density and viscosity of the spinal fluid was also increased in these cases. It was sterile, and when injected into the vein of a rabbit no toxic symptoms supervened. In the type of pellagra which is called typhoidal, where the clinical symptoms are entirely nervous and resemble meningitis, the proteid and lymphocytes of the spinal fluid are increased, suggesting a meningeal condition, and as the tension of the fluid is always raised, the author formulates the hypothesis that owing to a toxin or auto-intoxication there is stimulation of the ependyma with subsequent secretion of the cerebro-spinal fluid. Pellagra also attacks the spinal cord, nearly always in its lower segments, both sensory and motor tracks being affected, producing on the one hand a tabetic condition, and on the other a paraplegia of Erb's type. The reason suggested for this selective site of the poison is the fact that these people are outdoor labourers who are constantly using their lower limbs and back; the circulation of the blood in the limbs is thus interfered with during prolonged fatigue, and there is also insufficient compensation owing to the

lack of good food. If the analogy is used that the arteries which are exposed to the greatest amount of strain are the first to become sclerotic, the conditions enumerated would all tend to predispose the regions of the cord for the lower limbs to the attack of the pellagral poison. WINIFRED MUIRHEAD.

WASSERMANN'S REACTION IN THE CEREBRO-SPINAL FLUID
(425) **IN CERTAIN NERVOUS AND MENTAL DISEASES. (Réaction de Wassermann dans le liquide céphalo-rachidien au cours de certaines maladies nerveuses non syphilitiques.)** CL. VINCENT, *L'Informateur des Aliénistes et des Neurologiste*, No. 5, May 25, 1912, p. 147.

CERTAIN patients in whom syphilitic lesions of the nervous system could be definitely excluded gave a positive reaction with their spinal fluid under exactly similar conditions to that obtained in the fluids of general paresis and tabes. Almost all these cases in which the spinal fluid was positive were cases of cerebral tumour. In one interesting case in which the tumour was operated upon, the Wassermann reaction was negative in the blood serum and in the spinal fluid, but was positive with the fluid of the brain hernia. The spinal fluids in which this reaction was found to be positive are not normal, and almost suggest the possibility of a positive result. They are yellow, strongly albuminous, often fibrinous, and occasionally contain complement. It is difficult to understand these facts, but possibly they are analogous to the reaction obtained in scarlet fever, leprosy, and in the cadaver. These results diminish the specificity of the Wassermann reaction, but a positive reaction has not been observed more than five times in 600 nervous cases caused by other conditions than syphilis.

WINIFRED MUIRHEAD.

PSYCHIATRY.

ON THE BACTERIOLOGY OF ASYLUM DYSENTERY. HAMILTON
(426) TEBBUTT, *Journ. Hygiene*, Vol. 12, No. 2, June 1912, p. 218.

A REPORT of the results of an investigation of the stools and blood sera of acute and relapsing cases of dysenteric diarrhœa in a large asylum in the Midlands.

A number of dysentery bacilli of the mannite-fermenting type were isolated. These could be divided into two sub-groups: (*a*) those that do, and (*b*) those that do not (1) ferment sorbite and (2) form indol in peptone broth in six days. Several attempts

to infect a monkey with sorbite-fermenting strains were not successful. No dysentery bacilli were found in an examination of a considerable number of flies infesting the surroundings of chronic and acute cases of bacillary dysentery.

A. NINIAN BRUCE.

THE CLINICAL VALUE OF BUTENKO'S TEST. (Il valore clinico della prova di Butenko.) F. AGOSTI, *Riv. ital. di Neuropatol., Psichiatr. ed Electroter.*, 1912, v., p. 155.
(427)

BUTENKO in 1910 found that the urine of general paralytics, especially at the beginning or height of the disease, when treated with Liquor Bellostii, *i.e.*, solution of mercuric nitrate, gave an almost constant reaction consisting in the formation of a bluish to black precipitate. As the reaction varied in intensity according to the severity of the symptoms, Butenko attributed to it a diagnostic and prognostic value. Beisehe is the only writer who has confirmed this test. All other writers have contested its value. Agosti, as the result of the examination of 283 cases, arrives at the following conclusions. A positive reaction is not peculiar to general paralysis, though relatively more frequent in that disease, and cannot help to an early diagnosis. The reaction is not connected with syphilitic infection, since it is negative in primary and secondary syphilis of the nervous system. Positive results may be found in normal individuals, in patients suffering from almost any psychosis, and in many organic affections.

J. D. ROLLESTON.

TRAUMATIC GENERAL PARALYSIS. TISSOT, *L'Encéphale*, April 10, 1912, p. 355.
(428)

ALTHOUGH the author considers his case one which lends support to the view that admits the possibility of the genesis of dementia paralytica in trauma, it cannot be said to be entirely conclusive. The patient was a man of 33, with a clean bill of previous health, who denied venereal disease. At a time when he was, apparently, in the enjoyment of normal, mental, and physical health, a severe accident, in which he seems to have had a fracture of the skull (to judge from the description given), altered the whole complexion of his life; very shortly afterwards the signs of general paralysis set in, and he eventually died from that disease. There was no Argyll-Robertson pupil, but on the other hand there was pronounced lymphocytosis of the cerebro-spinal fluid. No necropsy was obtained.

S. A. K. WILSON.

TREATMENT.

THE DIAGNOSIS AND TREATMENT OF SCIATICA. WITH A
(429) **NOTE ON THE METHODS IN USE AT HARROGATE.** W. BERTRAM WATSON, *Brit. Med. Journ.*, April 27, 1912, p. 946.

THE author divides cases of sciatica as follows:—

A. Primary group.
1. Sciatic neuralgia.
2. Sciatic perineuritis.
3. Sciatic neuritis.

B. Secondary group.

Sciatic neuralgia appears to be an expression of nervous exhaustion, and is unaccompanied by any definite inflammatory change in the nerve trunks. It is also unaccompanied by muscular wasting, and neither movements of the limb nor pressure elicits pain.

Sciatic perineuritis or neuritis is a disease of adult life, and four times as common among men as women. There is almost always a gouty or rheumatic history. The exciting cause is exposure of the limb to damp cold. Primarily a perineuritis develops, the pain and tenderness being due to irritation of the sheath nerves. If the nerve fibres become involved, a neuritis develops; when muscular atrophy, paresis, reaction of degeneration and alterations in sensibility are found.

The secondary group includes all cases resulting from pressure or the spread of inflammatory processes. A short account of these is given.

The treatment is discussed briefly, attention being specially directed to electrical treatment. A brief description of most of the methods is given. A NINIAN BRUCE.

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Review

of

Neurology and Psychiatry

Original Articles

FAMILIAL AMAUROTIC ATAXIC PARAPLEGIA.

By PURVES STEWART, M.A., M.D., F.R.C.P.,

Physician to the Westminster Hospital and to the West End Hospital for Nervous Diseases.

(Plates 21 and 22.)

THE following cases form a group which is of considerable clinical interest when compared with the various types of familial ataxia recorded by Friedreich, Marie, Sanger-Brown, and others.

The family to which my cases belong consists of four members: The oldest, George B., aged 29, is healthy, and pursues the avocation of a greengrocer. The other three, Rose B., aged 28; Ernest B., aged 19; and Manuel B., aged 14, are all affected by the disease hereinafter described. The patients' great-grandfather is said to have had pulmonary phthisis. No history of nervous or mental disease can be traced for three generations back. There was no consanguinity of the parents.

CASE 1.—Rose B., 28 years of age, has never been able to see more than enabled her to distinguish light from darkness. She did not begin to walk until the age of 3, and has always been unsteady in walking. The legs became gradually more unsteady as she grew older. She is still able to walk with the support of surrounding objects. Possibly her hesitating gait is partly accounted for by the blindness. She learned to read Braile raised type by means of the fingers, but latterly her

hands have become unsteady, and this has made reading somewhat difficult.

At the age of 22 she was for three months a hospital in-patient elsewhere, suffering from spasmodic torticollis. This subsequently disappeared spontaneously, and she has now no trace of torticollis.

Condition on Examination.—She is an intelligent young woman of normal speech and articulation. Both optic discs are white and atrophic. The retinal vessels are healthy and of good size, and the fundi are otherwise normal. The right eye is totally blind, there being no perception of light. The pupils are moderate in size, equal in diameter, and react to light, directly and consensually. She cannot converge, and the pupils do not contract during the attempt. There is well-marked divergent strabismus (see Fig. 1). There is no paralysis of any external ocular muscle. The eyes can be moved freely in all directions. There are slight nystagmoid jerks on extreme lateral deviation to either side. The other cranial nerves are normal. There is no cutaneous anæsthesia or analgesia of the face, trunk, or limbs. Joint-sense is normal. Stereognostic perception is normal when tested in the hands, the patient promptly recognising a chain, a pencil, and a sovereign.

There is slight unsteadiness of the upper limbs with the finger-nose test. The grasps of both hands are powerful. The diaphragm, intercostals, spinal, and abdominal muscles are normal. The lower limbs are powerful at all joints. The gait is slightly uncertain, partly apparently owing to blindness, but with a certain degree of titubation. There is no dragging of either foot. The supinator-jerks are normal. The knee-jerks are lively. The ankle-jerks are absent with reinforcement. The plantar reflexes are extensor in type. The sphincters are normal. There is no scoliosis (see Fig. 1). There is well-marked pes cavus, bi-laterally symmetrical.

Case 2.—Ernest B., aged 19, has had deficient vision all his life. Like his older sister he has never been able to see to read, but has learned to use the Braile type for the blind. His feet have been "stumpy" ever since he can remember, and this deformity has become steadily worse. He has never walked well. Both weakness and unsteadiness have been present, and have gradually become aggravated. He can now only walk with assistance.

Condition on Examination. — The patient is intelligent. His speech and articulation are normal. The optic discs are white and atrophic, but the retinal vessels are of good size. In both eyes the vision is reduced to the counting of fingers at a distance of about 2 ft. There is divergent strabismus of the globes (see Fig. 2). The pupils, which are moderate in size, react to light. He cannot converge, and the pupils do not contract during the attempt. The other external ocular movements are freely executed in all directions. There is no nystagmus. The cranial nerves are otherwise normal. There is no cutaneous anæsthesia or analgesia. Joint-sense is everywhere normal. The upper limbs are powerful. There is unsteadiness in both hands with the finger-nose test. The lower limbs are clumsy and unsteady, but no individual movement is lost. There is well-marked pes cavus

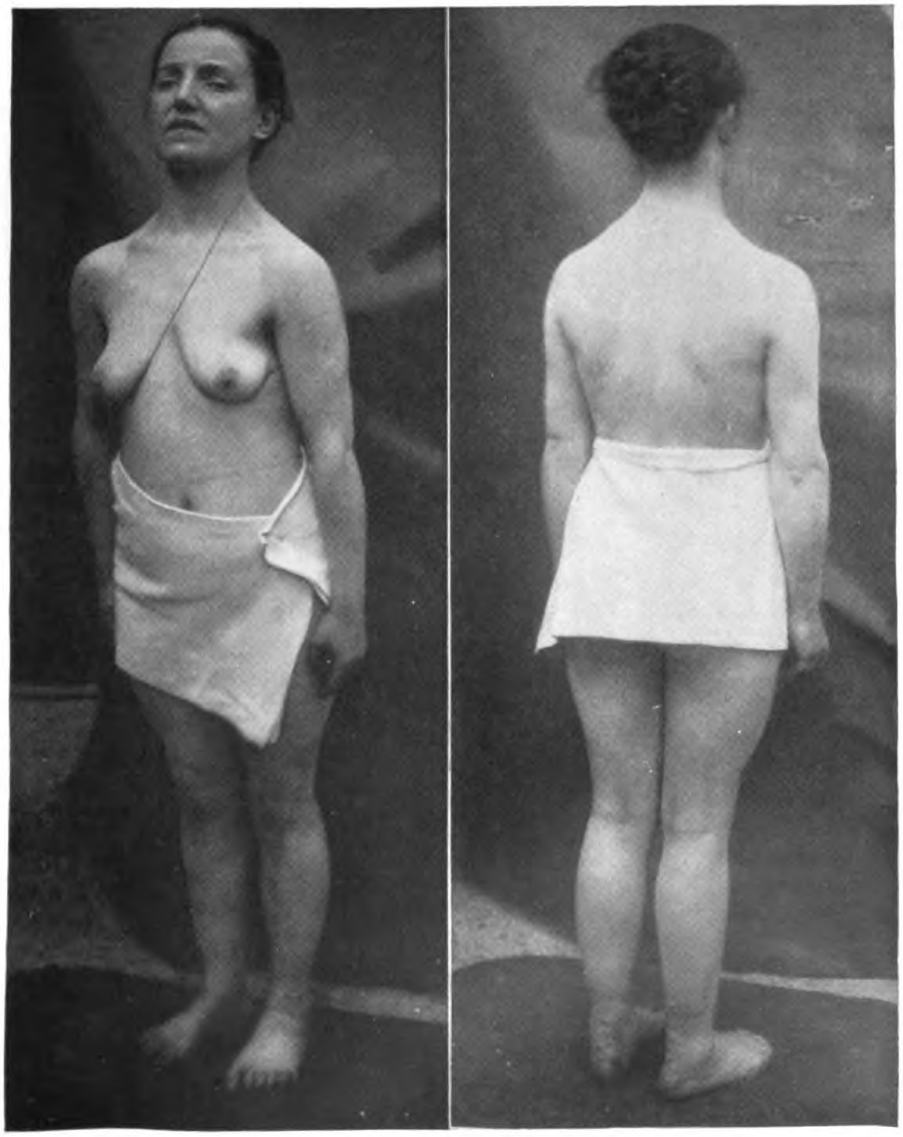

FIG. 1.—Familial Amaurotic Ataxic Paraplegia.

Rose B., æt. 28. Figures show divergent strabismus and absence of scoliosis.

with talipes equinus. The patient walks unsteadily, the heels failing to touch the ground. There is no scoliosis (see Fig. 3). The supinator-jerks and knee-jerks are brisk. There is ankle-clonus on both sides. The plantar reflexes are extensor in type. The sphincters are normal.

CASE 3.—Manuel B., aged 14, was apparently normal till about the age of 7 or 8 years. By that time he was able to read and write like an ordinary child, and he is also said to have walked normally. At 7 or 8 years of age his eyesight began to fail, and now he can no longer see to read.

Condition on Examination.—He is an intelligent little boy of normal speech and articulation. The optic discs are white and atrophic, the retinal vessels being of good size. He can only count fingers at a distance of about 3 ft. The pupils are equal, and react both to light and on convergence. There is a divergent strabismus of the globes (see Fig. 2). There is a constant coarse rhythmic rotatory nystagmus, increased on voluntary movement of the eyes. The external ocular movements can be performed fully in all directions. The remaining cranial nerves are normal. There is no cutaneous anæsthesia or analgesia, and joint-sense is everywhere perfect. The upper limbs are powerful and free from unsteadiness with the finger-nose test. The gait is neither unsteady nor spastic, but patient, when standing or walking, cannot place the heels on the ground owing to the presence of talipes equinus. There is pes cavus. There is no scoliosis (see Fig. 3). The supinator-jerks and knee-jerks are brisk. The ankle-jerks are obtained only with reinforcement. The plantar reflexes are extensor in type. The sphincters are normal.

RESUMÉ.

To sum up, out of a family of four children, the oldest, aged 29, is healthy, whilst the other three, a sister, aged 28, and two brothers, aged 19 and 14 respectively, show the following signs and symptoms:—

1. *Primary Optic Atrophy* with marked impairment of vision. The visual defect in the two older children dates from infancy; in the youngest child it did not supervene until the age of 7 or 8 years.

2. *Divergent Strabismus*, evidently due to the loss of binocular vision. Such strabismus, without ocular paralysis, is common in cases of blindness from optic atrophy.

3. *Deformity of the feet.* Talipes equino-varus, varying in degree in the different cases.

4. *Absence of scoliosis*, even in advanced stages of the disease.

5. *Evidence of cerebellar degeneration.* Unsteadiness of the

upper limbs (except in the youngest of the series) and of the lower limbs in all three cases. The ataxia is uninfluenced by closing the eyes.

6. *Signs of pyramidal degeneration.* Extensor plantar reflexes in all three. Ankle-clonus was present in Case 2. On the other hand, in Cases 1 and 3 the ankle-jerks were diminished or absent.

7. *Alteration of the gait* together with contracture of the calf muscles.

8. *Nystagmus* was well marked in one case (the most recent of the three). In Case 1 it was poorly marked. In Case 2 it was absent.

Diagnosis.

The foregoing familial nervous disease does not correspond to any of the commoner types hitherto described. Thus, for example, when compared with Friedreich's ataxia,[1] although we note several points of similarity with amaurotic ataxic paraplegia, notably the early age of onset (although in this respect amaurotic ataxic paraplegia is much earlier), the presence of ataxia with pes cavus, and the existence of an extensor plantar response, yet it differs from Friedreich's disease in the occurrence of early and intense optic atrophy with marked divergent strabismus, and in the absence of scoliosis or of articulatory difficulties.

Marie's hereditary cerebellar ataxia[2] and the remarkable series of cases described by Sanger-Brown[3] resemble this disease in the presence of ataxia with optic atrophy and with increased knee-jerks, but our cases differ in their early age of onset (Marie's ataxia commencing, as a rule, not during infancy or childhood, but much later, between the ages of 17 and 35), in the absence of articulatory difficulty, in the intensity of the optic atrophy and blindness, and in the presence of marked deformity of the feet.

Morbid Anatomy.—Although all three patients are still alive, certain conclusions as to the morbid anatomy may nevertheless be reasonably inferred. The presence of primary optic atrophy is beyond doubt. The inco-ordination of the limbs and the absence of sensory changes, whether of joint-sense or of cutaneous sensibility, point to the existence of degeneration in the afferent cere-

[1] Friedreich, *Virchow's Archiv.*, 1863, Vols. 26 and 27; 1876, Vols. 78 and 80.
[2] Marie, *Sémaine Médicale*, 1893, p. 444.
[3] Sanger-Brown, *Brain*, 1892, Vol. 15, p. 250.

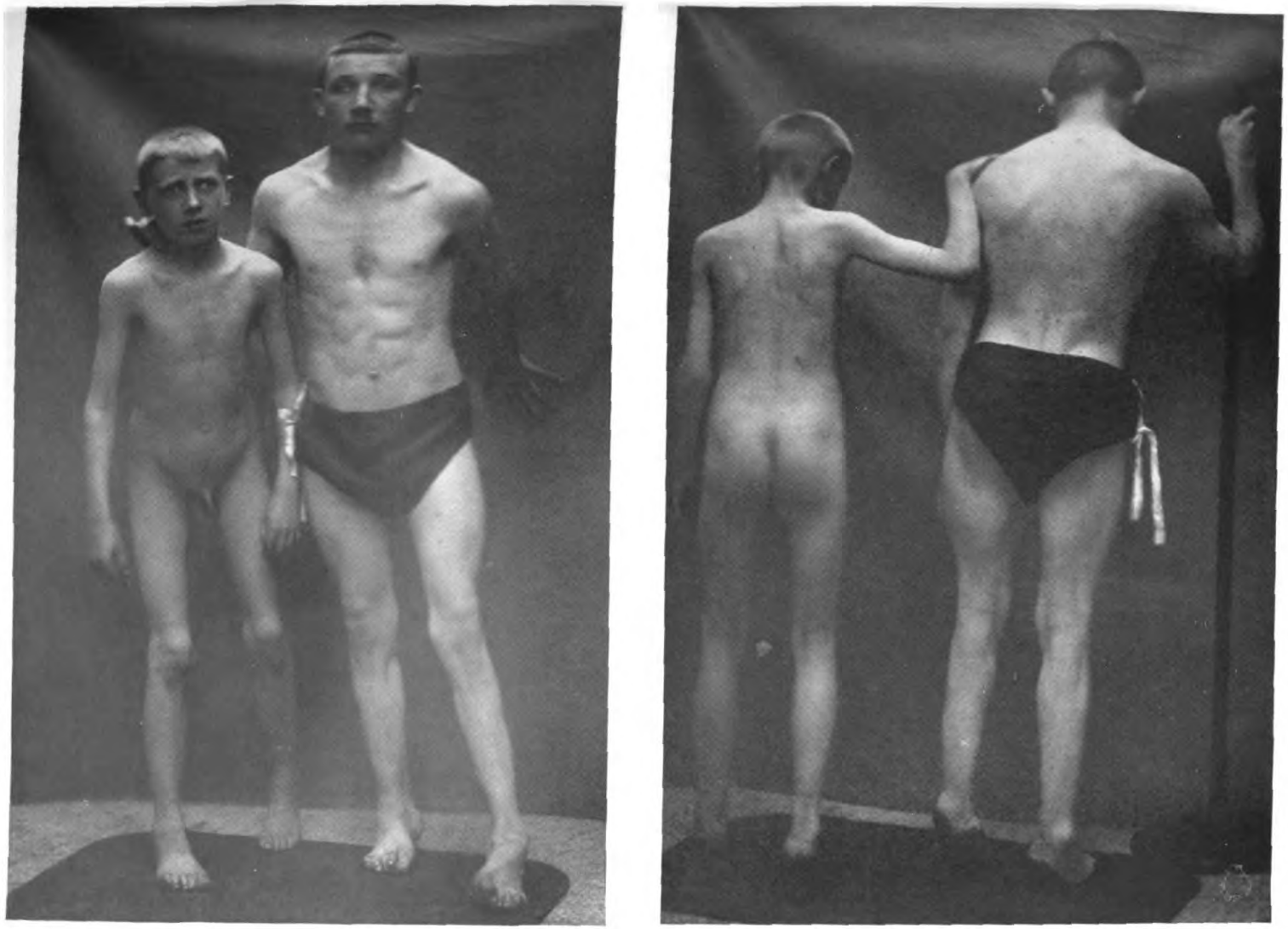

PLATE 22.

FIGS. 2 and 3.—Familial Amaurotic Ataxic Paraplegia.

Ernest B., æt. 19, and Manuel B., æt. 14. Figures show divergent strabismus, talipes equino-varus, and unsteady station. Note absence of scoliosis.

bellar paths within the spinal cord, or, perhaps, in the cerebellar cortex itself. Lastly, the invariable occurrence of extensor plantar reflexes indicates the presence of pyramidal degeneration. The nature of the morbid process is probably similar to that which has been so often found in Friedreich's ataxia, viz., a primary and progressive systemic degeneration of the above-named paths.

ACUTE BULBAR PALSY FOLLOWING IN THE WAKE OF MUMPS.

By JOSEPH COLLINS, M.D., and ROBERT G. ARMOUR, M.D.,
of the Neurological Institute of New York.

(Plates 23 and 24.)

WE have recently witnessed the manifestations of an infection of the central nervous system which were of abrupt onset, brief duration, and profound and terrifying intensity. The clinical features were those of an acute bulbar palsy. The apparent origin of the infection was of an extremely mild attack of mumps, and the pathological basis of the disease was an inflammatory state that could not be distinguished from poliomyelitis.

Implication of the nervous system by familiar infectious disease is, now that nervous symptoms are more frequently given their proper interpretation, much more common than was formerly suspected. Until recently it has been taught that in the majority of instances in which nervous symptoms develop in the course of infectious disease there is no apparent anatomic changes in the brain or its coverings, but that the lesion is what French writers call meningismus, due to the toxins manufactured by germs engaged in warfare in a distant part of the body.

In proportion, however, as these cases are carefully investigated, it is found that there exist in the majority of them definite inflammatory changes in the brain substance, and in the meninges which constitute true encephalitis and meningitis. Symptoms indicative of implication of the nervous system occasionally occur in mumps, and several instances of meningitis, and a few of encephalitis attended by such symptoms as aphasia, monoplegia, hemiplegia, and ataxia have been recovered. We have not

encountered an example of such overwhelming infection and such clinical display as the one we here record.

A strong, active, lusty boy of 11 years showed signs of mumps on Sunday. During the following week he complainèd of the swelling and of pain on swallowing, but he was not considered to be ill, nor was he kept in the house. A week later he said he was dizzy, but no attention was paid to it. On the following day he complained again of vertigo and headache, and said he felt ill and chilly. On Wednesday, that is, ten days after the onset of the mumps, and three days after the first symptom of any involvement of the nervous system, he came in from an outing on roller skates in the street, and said he was very tired and dizzy, and had headache. It is from this time that the parents date his illness. The next morning he was uncertain in his station and gait, and displayed on attempting to walk decided inclination to fall to the left. He was seen by one of us with his family physician, Dr J. J. M'Kew, and the following note was made.

"He is slightly stuporous and co-operates indifferently. All of the cranial nerves appear to functionate save the left seventh. There seems to be left facial paralysis. On looking to the left there is distinct nystagmus. The grip of the hands is alike, and he can pronate and supinate the outstretched hand rapidly. The knee-jerks and ankle-jerks are elicitable, and he can move the lower extremities freely. When he attempts to stand he is insecure somewhat as a drowsy person might be, and when he walks he inclines toward the left." On the afternoon of this day, viz., on the fourth day of his illness and eleven days after the first manifestations of mumps, he was admitted to the Neurological Institute. By this time dysphagia, dysarthria and tachycardia had developed. Rectal temperature on admission was 100·5° Fahr. The cerebro-spinal fluid which came out of the needle without indication of pressure showed no pleocytosis or other abnormality. Examination of the blood showed a mild leucocytosis (15,000 W.B.C.) but there was no marked increase of the neutrophiles.

There was no other paralysis than those mentioned, and there was no rigidity of the neck or trunk. The child remained conscious, and displayed hour by hour increasing difficulty in swallowing, breathing, and speaking. He no longer complained of anything. The facial expression was one of composite immobility and struggle. The dysphasia increased to absolute inability to swallow, the voice

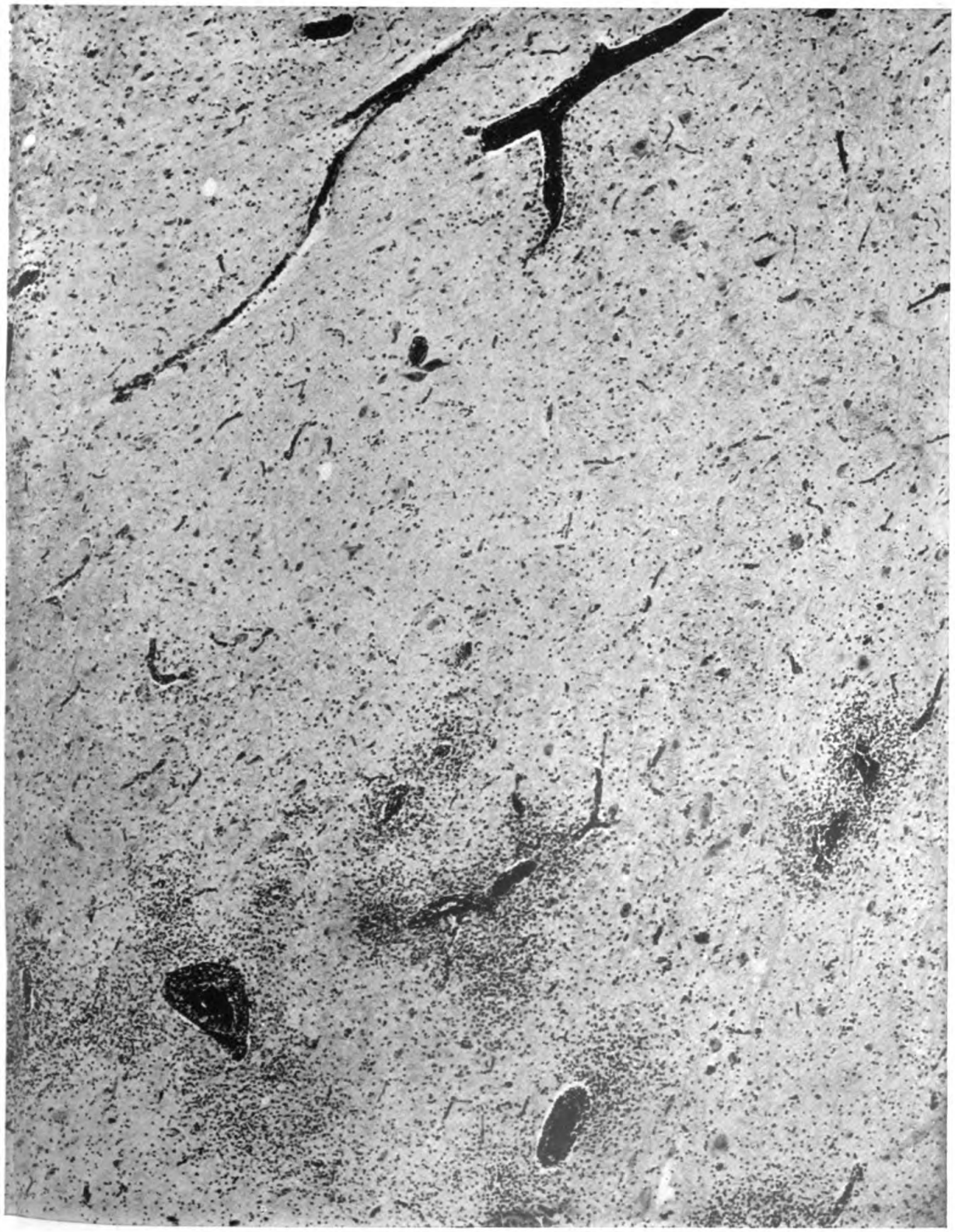

FIG. 1.—Section through the level of the VI. nucleus, reticular formation.

became nasal, toneless, and disappeared. The dyspnœa assumed the Cheyne-Stokes type, the pulse became rapid and irregular, the cyanosis profound. He died the following morning, forty-eight hours after the onset of symptoms which were considered of enough importance to take him to a physician, and sixty hours after he had inclination and strength to go in the street roller-skating.

No paralysis save those mentioned developed. His agony was so great that sensory examination could not be made, though he was conscious until a few hours before the end.

We were permitted to remove the brain only. This was done four hours after death. On removing the calvarium the dura was seen to be moderately injected and œdematous. The pia-arachnoid showed marked changes which had given no clinical manifestations during life, and which are to be regarded as agonal. Overlying the greater part of the pia at the base, sides, and vertex of the brain was a thin blood clot of recent formation apparently. The pia-arachnoid was markedly œdematous and its vessels much engorged. The surface of the brain showed the same œdema and engorgement.

The different sinuses of the skull were opened, but no inflammatory process was discovered in any of them except in the left middle ear where there was a small amount of serous fluid which may possibly have been adequate to explain the left facial paralysis.

When the pons and the oblongata were cut through in the fresh state no gross abnormality could be detected, save a marked œdema and injection of the ependyma lining the fourth ventricle.

Stained sections of the pons and oblongata show changes which, though sufficient to explain the symptoms, seem to be disproportionate to the overwhelming rapidity and intensity of the disease clinically. Sections through the oblongata, pons, and crura show a severe, inflammatory round cell infiltration which is most intense at the superior level of the olivary bodies, diminishing in intensity in both directions, so that there is little that is pathological to be seen superior to the level of the posterior quadrigeminal bodies, or inferior to the caudal end of the pyramidal decussation. That portion of the bulb and the olives at the level of the sixth nucleus is unquestionably the seat of greatest activity of the process. The lesion consists of small discrete areas of round

cell infiltration with loss of its fixed elements, and a moderate glia cell activity. They occur for the most part about the vessels, which are themselves greatly swollen and infiltrated. The media and adventitia show intense round cell infiltration, the intima endothelium is swollen and proliferating; the round cells appear for the most part similar to those seen in poliomyelitis, but there are rather more leucocytes than is the case described by Wickman and others. There are few cells resembling polyblasts described by Maxinow, but not as many as one looks for in poliomyelitis. The greater number of cells are distinctly lymphocytes. The foci separated from the vessels show great destruction of the fixed elements and infiltration of round cells; in the centre of the focus, usually poor in elements, the necrosis is more marked, while at the periphery the round cells are heaped together in clumps, and surrounded by proliferating glia cells. The ganglion cells show all stages of chromatolysis, occasionally vacuoles but no neurophagocytosis. As in poliomyelitis, quite normal ganglion cells are seen in the midst of these foci. Marchi method shows small degenerated myelin particles throughout the entire area, and the foci are filled with Kornchen cells. The foci are irregularly distributed throughout the oblongata and pons, but are most numerous in the gray reticular formation, and extend on the left side into the restiform body. In the pons these are distributed in the reticular formation through which the pyramids pass. The ependyma of the fourth ventricle is swollen and congested, but shows no infiltration. The meninges of the brain stem are only slightly infiltrated, and the vessels appear singularly normal.

The pathological process in this case was, in short, that of poliomyelitis. and as such it may be taken to show that the disease known as poliomyelitis may occur sporadically, and be caused by different organisms. The symptoms in any given case will naturally vary with the state of the disease.

FIG. 2.—Section through the reticular formation, level of the X. nucleus.

Abstracts

ANATOMY.

THE CILIARY GANGLION OF REPTILES. (Das Ciliarganglion der
(430) **Reptilien.)** M. v. LENHOSSÉK, *Arch. f. Mikr. Anat.*, Bd. lxxx., H. 1, Mai 30, 1912, S. 89 (two plates and four text figures).

THE ciliary ganglia in the lizard, the snake, and the tortoise, were examined by Cajal's silver method. The condition in the lizard has already been described (*c. Review*, 1911, ix., p. 619). In the snake two ciliary ganglia are found; the first arises close to the oculomotor nerve by a short, thick motor root. Two ciliary nerves emerge from its distal pole. The second ciliary ganglion is found more distally, is smaller and closely applied to the third nerve. It gives origin to one ciliary nerve. No sensory or sympathetic fibres pass to either of these ganglia, both of which are thus purely motor. The nerve cells are identical in the two ganglia; they are unipolar, the nucleus is large, the protoplasm homogeneous and only one oculomotor fibre is applied to each cell, the axis cylinder process of which usually divides and may surround the cells like a network. The axon process of the cell itself usually arises at the same end as the connection with the oculomotor fibre.

In the tortoise the ciliary ganglion may be in close contact with the oculomotor nerve, or may have a long motor root. It gives rise to two ciliary nerves, one of which may be joined by a twig from the trigeminus, otherwise there are no sensory or sympathetic connections. The cells are unipolar, with a large nucleus at one pole but no nucleolus. The axon process is filamentous. Each cell is connected with two fibres, a large thick oculomotor fibre and a thin accessory fibre. The former ends in a complicated mesh-work surrounding or applied to the cell. The latter are probably fine collateral twigs arising from the former. They usually accompany the former as it passes to the cell, and end in a similar network, but whether they reinforce its action or form a connection with a second cell is uncertain.

The paper is illustrated with forty-two figures.

A. NINIAN BRUCE.

THE CILIARY GANGLION OF BIRDS. F. W. CARPENTER, *Folia*
(431) *Neuro-biologica*, 1911, v., p. 738 (with 15 figs.).

THE ciliary ganglion of birds is situated directly on the trunk of the oculomotor nerve, and gives off from its distal end one large

nerve and a variable number of smaller ones. These together constitute the nervi ciliares breves. A communicating ramus from the ophthalmic division of the trigeminus joins the nervi ciliares breves not far from the ganglion. A sympathetic root is not present. The cells of the ciliary ganglion are unipolar. Their unbranched processes pass distally to form the short ciliary nerves. The cell bodies are enclosed in capsules with amphicyte or satellite nuclei.

Large, well-medullated fibres from the oculomotorius enter the proximal portion of the ganglion and terminate on about three-fourths of the cells in calyx, brush or arborescent endings. The portion of the ganglion supplied by the oculomotor nerve is characterised by the presence of coarse, heavily medullated neurites. This is the oculomotor region. Fine, weakly medullated fibres forming the radix longa from the ophthalmicus enter the distal portion of the ganglion and terminate on cells there in the form of delicate cell nests. This is the trigeminal region. The heavily medullated fibres and the endings peculiar to the oculomotor region are absent.

The failure of nicotin and removal of blood to paralyse the ciliary ganglion of birds is probably due to the calyx endings which intimately bind together the oculomotor and ciliary neurones.

The trigeminal fibre system passing through the ganglion appears to be motor in function and to control the dilator muscles of the eye.

The ciliary ganglion of birds is not cerebro-spinal, nor, strictly speaking, sympathetic. It appears to be a purely motor ganglion, with peculiar histological characters, belonging to the mid-brain and bulbar subdivisions of the autonomic nervous system (*v. Review*, 1911, ix. p. 558). A. NINIAN BRUCE.

(432) **AN ANATOMICAL AND EXPERIMENTAL STUDY OF THE VAGUS NERVE. Part 2 (continued).—THE MUSCULAR INNERVATION OF THE NERVES CONNECTED WITH THE NUCLEUS AMBIGUUS. (Le Nerf Vague. Étude Anatomique et Expérimentale. Deuxième Partie (suite): Innervation Musculaire des Nerfs en connexion avec le Noyau Ambigu.)** M. MOLHANT, *Le Névraxe*, Vol. 13, F. 1, June 15, 1912, p. 5 (21 figs.).

IT was shown by van Gehuchten and Molhant in December 1910 (*Le Névraxe*, xi., p. 73) that the sole factor which determines the time of onset, and the duration, of the degenerative process occurring in the peripheral stump of a divided nerve is the degree of thickness of its myeline sheath. In the rabbit degenerated fibres can be traced in thick-sheathed fibres up to the hundredth

day or later, whereas all traces of degeneration disappear in the slender fibres about the tenth day after section, and in the medium-sized ones about the fifteenth day, owing to the fact that the fragmented myeline has then been absorbed. These results were later confirmed by Molhant for the rabbit's vagus nerve-branches.

In the present study, therefore, he kept his animals for only six or eight days; by so doing he was able to trace, by the Marchi method, degeneration of divided vagus branches into their intramuscular ramifications, where their myeline sheath is very thin. The histological part of this paper is excellent; the various branches were examined at various parts of their course. There is a good historical summary, specially full on the motor laryngeal innervation. Reference to his previous study of the nucleus ambiguus (*v. Review*, June 1912, p. 278) will render intelligible the use of certain terms used here. Molhant finds that the nucleus ambiguus innervates exclusively striped muscle (in the rabbit the whole of the œsophageal muscle is striped).

Chapter I.—Muscular innervation of glosso-pharyngeal nerve.—Its motor fibres have a thick myeline sheath, rise in the cells of the compact formation, and innervate exclusively the stylo-pharyngeus muscle. Molhant found in all his transverse sections of the nerve peripheral of the muscle a certain number of nerve cells; he hopes to give a study of the morphological nature and anatomical connections of this hitherto undescribed third peripheral IX. ganglion.

Chapter II.—Motor innervation of larynx.—A. Inferior laryngeal nerve.—Innervates all the laryngeal muscles, except the crico-thyroid; by thick fibres from scattered formation. Its innervation is bilateral, with marked homolateral preponderance.

B. Superior laryngeal nerve.—Motor fibres are large, rise in compact formation, and innervate exclusively the homolateral crico-thyroid muscle.

C. Middle laryngeal nerve of Exner.—This nerve [absent in cat, dog, ape (Exner, 1893)] comes off ramus pharyngeus X. in rabbit. Molhant interrupted the ramus pharyngeus X., and kept animals for six days; he concludes it takes part exclusively in the (double) innervation of the homolateral crico-thyroid; its fibres enter the upper part of the muscle.

Chapter III.—Motor innervation of pharynx.—With exception of stylo-pharyngeus, it depends entirely on ramus pharyngeus X.; innervates constrictor muscles of both sides, but mainly homolateral. Nuclear origin is mainly in compact, partly in semi-compact, formation. Molhant found the small size of rabbit's pharynx a hindrance; a larger animal should be used. He admits his studies leave undecided the question whether the nucleus

ambiguus gives origin to the motor fibres of the levator palati, palato-pharyngeus, and palato-glossus muscles.

Chapter IV.—Motor innervation of œsophagus.—Its motor fibres lose their medullary sheath (a very fine one) at moment of penetration into the organ; no ganglion cells were found in its coats. Origin in compact formation: fibres pass direct to the (striped) muscle; those of its cervical segment enter by the nervus recurrens, those of its thoracic and abdominal segments by the thoracic vagus. LEONARD J. KIDD.

AN ANATOMICAL STUDY OF THE VAGUS NERVE OF MAN.

(433) **(Contribution à l'Etude Anatomique du Nerf Pneumo-Gastrique chez l'Homme.)** A. VAN GEHUCHTEN and M. MOLHANT, *Le Névraxe*, Vol. 13, F. 1, June 15, 1912, p. 55 (61 figs.).

THE authors have found that the histological structure of the human vagus nerve and its roots and branches corresponds almost exactly with that found by Molhant previously in the rabbit. He showed that (1) the thick-sheathed vagus fibres are motor for the striped muscles of the pharynx and larynx, and are found in the whole extent of the cervical vagus, ramus pharyngeus X., and in the superior and inferior laryngeal nerves; (2) thin fibres go to striped muscle of œsophagus and heart, and to all the smooth muscles of stomach and tracheo-pulmonary system: they exist in cervical vagus, nervus recurrens, and thoracic vagus and all its branches; (3) medium-sized fibres are sensory: are found in depressor nerve of Cyon, nervus recurrens, thoracic vagus, and especially in the superior laryngeal nerve. The authors find in man exactly the same set of four roots of the vagus group which Molhant found in the rabbit (*v. Review*, x., June 1912, p. 279). They confirm the teaching of van Gehuchten (1902) that the classical description of the nerve of Willis, as dividing into an internal and an external (muscular) branch, is erroneous: the latter branch comes off the vagus of man between the jugular and nodose ganglia; this part of their work must be studied in the original, and be compared with Molhant's study in the rabbit (*Névraxe*, xi., May 1911, p. 131).

The authors failed to find the superior cardiac branch, which is the homologue of the easily discovered depressor nerve of the rabbit. The thoracic vagus contains medium and fine fibres, as in the rabbit. Special attention was paid to the following nerves:—

1. *Pharyngeal branch of vagus.*—Almost all its fibres are thick as in the rabbit.

2. *Superior laryngeal nerve.*—(*a*) Internal branch contains medium fibres, and is entirely sensory. (*b*) External branch con-

tains thick and medium fibres, which go to the crico-thyroid muscle: its thick fibres are much more numerous than in the rabbit, because man lacks the middle laryngeal nerve (of Exner) of the rabbit: that nerve contains thick fibres, and shares in the double motor innervation of the rabbit's crico-thyroid muscle.

3. *Inferior laryngeal nerve.*—Its laryngeal fibres are all thick, as in the rabbit: its œsophago-tracheal fibres are all thin or medium-sized, as in the rabbit.

Conclusions.—1. In spite of the lack of experimental evidence in man, the similarity now established between the structure of the vagus nerve and its branches in man and the rabbit respectively shows that the conclusions arrived at by Molhant in the rabbit may be applied "with more than probability" to the vagus nerve of man.

2. The large vagus fibres are motor for the striped muscles of the pharynx and larynx: they all come from the nucleus ambiguus.

3. The fine fibres are motor for the involuntary striped muscle of œsophagus and heart, and for the smooth muscle of œsophagus, stomach, and respiratory system; they come almost exclusively from the dorsal vagus nucleus.

4. The medium-sized fibres are, for the most part, the sensory fibres; their ganglionic origin is in the cells of the jugular and nodose ganglia. LEONARD J. KIDD.

ON THE GROOVES UPON THE OSSA PARIETALIA COMMONLY (434) SAID TO BE CAUSED BY THE ARTERIA MENINGEA MEDIA. FRED. WOOD JONES, *Journ. Anat. and Physiol.*, Vol. xlvi., Part iii., April 1912.

THREE hundred years ago the grooves on the inner aspect of the parietal bone were ascribed to venous sinuses, but, since Willis published his work on the arteries of the brain more than two hundred years ago, they have been attributed to the arterial pulse in the branches of the middle meningeal artery. The author reviews the evidence and decides in favour of the older theory. It is pointed out that the size of the grooves is considerably greater than that of the arteries which they lodge, and that they increase in size as they are traced from the foramen spinosum. Sections of the meninges of human fœtuses show that the arteries are extremely small when compared with the veins which accompany them. Further, the veins usually separate the arteries from the cranial wall. Histologically these veins are in every way similar to the cranial blood sinuses, and their thin walls are readily ruptured in experimental fracture of the skull. In

conclusion the author suggests that many cases of "middle meningeal haemorrhage" are due to lesions of the venous sinuses which run with the arteries.

T. B. JOHNSTON (Edinburgh).

"CERVICAL" RIB: FACTORS CONTROLLING ITS PRESENCE AND ITS SIZE. ITS BEARING ON THE MORPHOLOGY AND DEVELOPMENT OF THE SHOULDER. T. WINGATE TODD, *Journ. Anat. and Physiol.*, Vol. xlvi., Part iii., April 1912.

(435)

FOUR cases of "cervical" rib are fully described in this paper. In three, the rib was associated with the seventh cervical vertebra, but in the fourth it was a rudimentary rib connected with the first thoracic vertebra. The author points out that in the case of the true cervical ribs the constitution of the brachial plexus was practically normal, whereas in the case recorded of rudimentary first thoracic rib the brachial plexus was post-fixed nearly one complete segment.

Symptoms similar to those produced by a cervical rib are sometimes said to occur in connection with scalene exostosis due to localised myositis ossificans. After a survey of 345 cases the author comes to the conclusion that this is an extremely rare condition and is of less frequent occurrence "than 'scalene exostosis' due to fusion or articulation of a rudimentary rib with the first complete costal arch."

In addition, the morphology of the scalene group of muscles is discussed, and the author concludes his paper by suggestions as to the causative factors in the extent of development of rudimentary ribs.

T. B. JOHNSTON (Edinburgh).

PHYSIOLOGY.

THE RESPIRATORY NERVOUS SYSTEM OF VERTEBRATES. (Studien über das Respiratorische Nervensystem bei den Wirbeltieren.) H. MÖLLGAARD, *Skandinav. Archiv. f. Physiol.*, Bd. 26, H. 4, 5, 6, April 2, 1912, pp. 315-383 (11 pl., 2 text figs.).

(436)

THIS paper is based on experimental and histological studies. Full accounts of nineteen experiments on dogs and cats are given. In some of these one lung was totally extirpated: in others various sympathetic ganglia were removed: in one experiment the dorsal vagus nucleus was extirpated.

Section 1. *Cell degeneration inquiry.*—Von Gudden's method was used in two dogs, aged one week, which were kept for nine and ten weeks respectively. Nissl's method was applied in seven

dogs and cats; one dog was kept for three months, all the others for fourteen or fifteen days; young, adult, and old animals were used.

Section 2. *Medullary-sheath degeneration* (*Marchi*).—One dog and nine cats were used; most were kept for ten to twenty days. In a cat the left dorsal vagus nucleus was destroyed by a 2 mm. deep incision with a small Dieffenbach tenotome; at a later date (not mentioned) Marchi showed degenerated fibres ending round cells of the ganglion nodosum, and none peripheral of it. Möllgaard found a few multipolar cells, each with three processes, in the ganglion nodosum. [L. R. Müller found a few multipolar cells in the jugular ganglion, but none in the nodosum (*Deutsch. Archiv. f. Klin. Med.*, Bd. 101, Feb. 1911, p. 421).]

Conclusions.—No nerve-fibres pass direct from bulb or cord to lungs. In the dog 12·5 per cent. of the cells of the ganglion nodosum go to the homolateral lung, and about 4 per cent. to the heterolateral: in the cat the crossed fibres are fewer. The ganglion cervicale medium of the dog and stellatum of the cat form a primary cell-station for the motor lung nerves of the same side. The sensory lung nerves rise in the cells of the lower and middle part of the ganglion nodosum, and end in the tractus solitarius and in the afferent reception-nuclear part of the dorsal vagus nucleus.

Section 3. *Morphology.*—The question of the relationship of the sympathetic system with the epibranchial ganglia of lower vertebrates is discussed. Möllgaard describes in the Selachian *Acanthias vulgaris* nerve fibres coming from the medulla and ending in a pericellular basket-work round cells of the branchiogastricus ganglion: he concludes that this forms a true histological sympathetic conduction-path: he homologises the ganglion nodosum of higher forms with this epibranchial ganglion. The paper ends with remarks on the spinal-sympathetic system, and on the phylogenesis of the lungs. It should be compared with the lung-extirpation experiments of Ikegami and Yagita (*v. Review*, v., 1907, p. 711) and also with the experiments of Molhant on the pulmonary branches of the vagus (*Le Névraxe*, xi., May 1911, p. 223). Möllgaard gives the following scheme:—

1. *Spinal-sympathetic System.*

1. *Centrifugal conduction-path.*—Processus lateralis of thoracic cord, *viâ* white rami, communicates to ganglion stellatum; thence by ansa subclavii, *viâ* vagus, to lung of both sides.

Function vaso-motor.

2. *Centripetal conduction-path.*—From homolateral and heterolateral lung, by vagus, ansa subclavii, ganglion stellatum, rami

communicates to second and third thoracic spinal ganglia; thence by dorsal roots to dorsal horn of cord (reflex-arc to processus lateralis).

2. *Vagus System.*

1. *Centrifugal conduction-path.*—Dorsal vagus nucleus, by vagus, to ganglion nodosum; thence by vagus to homolateral lung (possibly also heterolateral).

Function broncho-motor.

{ (*a*) Constrictor—over multipolar cells } of ganglion
{ (*b*) Dilator—antidromically over unipolar cells } nodosum.
[predominates in cat (Dixon and Brodie)].

? Also secretory nerves.

2. *Centripetal conduction-path.*—From lung of same and of opposite side to ganglion nodosum; thence by entering roots to dorsal vagus nucleus and to upper part of tractus solitarius.

"Hering-Breuer" fibres.

? Any other sensory lung-nerves. LEONARD J. KIDD.

THE FUNCTION OF THE PITUITARY GLAND. (Uber die Funktion der Hypophyse.) A. ASCHNER, *Pflüger's Archiv.*, Bd. 146, Heft 1, 2, 3, 1912, S. 1. (437)

TOTAL hypophysectomy by the buccal route was carried out in both young and old dogs, dogs from the same litter being used as controls.

The changes in hypophysectomised dogs were found to be more marked the younger the animal was at the time of the operation.

In the latter cases after a period of several months or longer the following changes were noted: The growth of the animal was markedly retarded, the hair fluffy, claws undeveloped, and the temperature 1° to 1½° below that of the control. The skin on microscopic examination showed no myxœdematous change. The skeleton retained its infantile characters, the milk teeth remained permanent, the epiphyses remained open, and no changes present in rickets or in cretinism were noted.

No degenerated tracts were found in the central nervous system. No calcification was found in the blood vessels. The pineal body, spleen, and pancreas were normal. The thymus persisted, but no hypertrophy was noticed. The lymphatics were only enlarged when some infection had taken place, the thyroid similarly being only enlarged where infection had occurred, and otherwise showed only enlarged alveoli due to an increased output of colloid. The adrenals showed an increase in the cortex at the expense of the medulla. The liver and kidney showed fatty degeneration.

The generative organs of both sexes were markedly retarded in their development.

The protein metabolism and the respiratory exchange were both diminished. Adrenalin and phlorizin diabetes were also reduced in amount.

Extirpation of the posterior lobe of the pituitary caused none of the changes above described.

Stimulation (thermal, chemical, electrical, or mechanical) of the tuber cinerium causes slowing of the pulse (even stopping of the heart), and a slowing of respiration with deeper inspiration, even with an involuntary cry. Stimulation of the hypophysis produces no marked change, the before-mentioned phenomena being obtained only if one exerts a pull on the stalk of the pituitary or if it be cut through. The author concludes from this that this explains why some experimenters got fatal results after hypophysectomy, and holds that the hypophysis is not an organ essential to life.

Stimulation of the tuber cinerium always caused a glycosuria, as well as contraction of the intestines, bladder, and to a less extent of the gravid uterus of cats or dogs.

Where grown-up animals were used for hypophysectomy the changes after the operation were not so marked as those got with the younger animals. There was no great increase in weight as noted by some workers. The dogs were more apathetic, laid on more fat, their resistance to infection was diminished, and their sexual instinct was less. R. A. KRAUSE.

THE FREQUENCY OF EXPERIMENTAL GLYCOSURIA FOLLOW-
(438) **ING INJECTIONS OF EXTRACTS OF THE HYPOPHYSIS.** JOSEPH L. MILLER and DEAN LEWIS, *Archiv. of Int. Med.*, May 1912, Vol. v., pp. 601-604.

INTRAVENOUS or intraperitoneal injections of saline extracts of either the anterior or posterior lobe of the hypophysis will occasionally produce a transitory glycosuria in dogs. It is doubtful whether or not this is due to the specific action of the extract on sugar metabolism. The tremor, marked respiratory symptoms and intestinal disturbance following the injection are sufficient to account for it. A. NINIAN BRUCE.

ON FEEDING YOUNG PUPS WITH THE ANTERIOR LOBE OF
(439) **THE PITUITARY GLAND.** T. B. ALDRICH, *Amer. Journ. of Physiol.*, Vol. xxx., No. iv., 1912, p. 352.

THE growth was not stimulated by anterior lobe of pituitary when fed to young pups. R. A. KRAUSE.

FURTHER STUDIES ON THE SUPRARENAL GLANDS. (Weitere
(440) **Studien über die Nebennieren.)** R. H. KAHN. *Pflüger's Archiv.*, Bd. cxlvi., Heft 10, 11, 12, 1912, S. 578.

THE author finds that the increase of adrenalin by stimulation of the sympathetic nerves is absolutely necessary in some animals (rabbits) for the setting free of the liver glycogen, whilst in others (cats) it helps the process. This explains why in one species one gets no hyperglycaemia after extirpation of the suprarenals and in others only a reduction in the amount. R. A. KRAUSE.

THE INFLUENCE OF ADRENALIN, MODIFIED BY SALTS, ON
(441) **THE BLOOD PRESSURE IN THE CAT.** I. R. BURKET, *Amer. Journ. of Physiol.*, Vol. xxx., No. iv., 1912, p. 382.

ADRENALIN has a depressor after effect on the blood pressure. This may be counteracted by small doses of barium chloride. A number of other salts are given that cause a rise or lowering of blood pressure. R. A. KRAUSE.

THE VASCULARITY OF THE LIVER.—V. THE INFLUENCE OF
(442) **THE GREATER SPLANCHNIC NERVES UPON THE ARTERIAL INFLOW.** BURTON-OPITZ, R., *Quart. Journ. of Exper. Physiol.*, Vol. v., No. 1, 1912, p. 83.

THE VASCULARITY OF THE LIVER.—VI. THE INFLUENCE
(443) **OF THE GREATER SPLANCHNIC NERVES UPON THE VENOUS INFLOW. VII. THE EFFECTS OF AFFERENT IMPULSES FROM THE HEPATIC PLEXUS UPON THE ARTERIAL INFLOW.** BURTON-OPITZ, R., *Quart. Journ. of Exper. Physiol.*, Vol. v., No. 2, 1912, pp. 189 and 197.

STIMULATION of the splanchnic nerve caused an increased inflow of blood in the hepatic artery. The influence of a vaso-motor mechanism upon the venous inflow is of no primary importance. Stimulation of the hepatic artery causes at first an inhibition of respiration along with which there is a lower blood pressure and diminished flow in the artery, followed by an increased rate of respiration as well as a rise in the arterial blood pressure and increase in the amount of blood inflow. R. A. KRAUSE.

THE CONDITION OF THE DIGESTIVE TRACTS IN PARA-
(444) **THYROID TETANY IN CATS AND DOGS.** A. J. CARLSON, *Amer. Journ. of Physiol.*, Vol. xxx., No. iv., 1912, p. 309.

THE author was not able to obtain any evidence of a hyper-excitability of the neuro-muscular mechanism of the stomach or small intestine in dogs and cats with parathyroid tetany. Any

change from normal was in the direction of a depression. This also applied to the sympathetic and automatic mechanisms.

R. A. KRAUSE.

PATHOLOGY.

(445) THE CHANGES IN THE CENTRAL NERVOUS SYSTEM RESULTING FROM THYRO-PARATHYROIDECTOMY. WALTER EDMUNDS, *Proc. Roy. Soc. Med.*, Vol. v., No. 8, June 1912, (Neurol. Sect.), p. 179.

THE thyroid and parathyroid glands were removed from two cats and one dog, which were fed on milk, the dog and one cat being given, in addition, 30 grs. a day of lactate of calcium. The two cats lived seven months each, and the dog four and a half months.

Chromatolytic changes were found in the cells of the spinal cord, especially the medium sized and smaller cells, in the medulla oblongata (less marked), in the Purkinje cells of the cerebellum, and in the medium and large pyramidal cells of the cortex. No changes were found in the pituitary body.

The percentage of calcium in the brain of the thyro-parathyroidectomised dog was about half that found in the brain of a normal dog, but no examination was made for excess of calcium in the urine.

A. NINIAN BRUCE.

(446) THE HISTOLOGICAL AND CHEMICAL CHANGES IN THE THYROID GLAND IN EXOPHTHALMIC GOITRE, AND THEIR RELATION TO THE FUNCTION OF THE GLAND. (Die histologische und chemische Veränderung der Schilddrüse bei Morbus Basedowii und ihre Beziehung zur Funktion der Druse.) KOCHER, ALBERT, *Virchow's Archiv.*, Bd. 208, Heft 1-2, 1912, S. 68.

AN histological and chemical study of the thyroid gland in Basedow's disease—the main changes being a rapid absorption of the colloid material along with a more or less marked hyperplasia or hypertrophy of the parenchyma (with partial degeneration), as well as the absence of new colloid material.

R. A. KRAUSE.

(447) ON THE RELATION OF THE THYMUS GLAND TO THE CHROMAFFIN SYSTEM. (Über das Verhältnis des Thymus zum chromaffinen System, über die Elemente der inneren Sekretion des Thymus und über das Verhältnis des Thymus und des chromaffinen Systems zum Sympathikus.) J. HORNOWSKI, *Virchow's Archiv.*, Bd. 208, Heft iii., 1912, S. 414.

THE writer holds that the thymus has an antagonistic action to the suprarenals.

R. A. KRAUSE.

PATHOLOGICAL CHANGES IN VOLUNTARY MUSCLES IN GENERAL DISEASES. R. C. JEWESBURY and W. W. C. TOPLEY, *Proc. Roy. Soc. Med.*, Vol. v., No. 8, June 1912, (Neurol. Sect.), p. 161.

(448)

THE biceps, rectus abdominis, and pectoralis major were examined in 153 cases. The muscles were fixed in formalin and cut in celloidin, and the sections were stained mostly with hæmalum and eosine.

In wasting diseases (45 cases) varying degrees of histological changes were found bearing little relation to the actual degree of wasting present. These changes consist of alterations in the size, shape, and staining reaction of the fibres, increase in the fibre nuclei, and alteration in their arrangement, and a relative increase of the interstitial tissue.

In acute general diseases (42 cases) no change of any kind was noted in 24; in the remaining 18, the changes were for the most part extremely slight, and consisted mainly in a slight degree of hyaline and granular change, and in a small number of cases of fatty degeneration.

In certain disorders associated with carbohydrate metabolism, there was a great increase in the amount of interstitial fat present, but this probably is of little pathological significance. True fatty degeneration appears to be much less common than is usually stated, but occurs to a marked degree in cases of diphtheritic toxæmia, in certain blood disorders and in poisoning by phosphorus.

Glycogen was only strikingly present in three cases, all of which were cases of diabetes. Amyloid change was not found in any case examined. A. NINIAN BRUCE.

CLINICAL NEUROLOGY.

THE REFLEX OF THE TENSOR FASCIÆ LATÆ. (Contributo allo studio del riflesso del tensore della fascia lata.) G. SABBATINI, *Riv. ital. di Neurop., Psichiatr. ed. Elettroter.*, 1912, v., p. 97.

(449)

SABBATINI investigated this reflex on 158 cases, in 40 of which the nervous system was normal, and came to the following conclusions:—

1. In persons whose nervous system is normal the behaviour of the reflex varies. It may be weak, exaggerated, or absent. Contraction of the tensor fasciæ latæ may be associated with that of the adductors, or with that of the sartorius.

2. Cases are more numerous in which stimulation of the sole gives rise to isolated contraction of the tensor fasciæ latæ than those in which it is followed by contraction of the tensor fasciæ

latæ combined with flexion of the toes, or by isolated flexion of the toes.

3. In 42 cases of organic hemiplegia the reflex was diminished on the side of the lesion in 60 per cent.

4. In complete transverse lesions of the cord the reflex was absent; in incomplete lesions it was either normal or diminished.

5. In tabes it was abolished contemporaneously with the other skin and tendon reflexes. In tabes incipiens it may be exaggerated like the other skin reflexes.

6. In peripheral neuritis it was present when there was hyperæsthesia, and absent when there was anæsthesia.

7. In general paralysis presence of all the cutaneous reflexes and exaggeration of all the tendon reflexes were constant.

8. The fascia lata reflex was present in 9 out of 18 cases of dementia præcox.

9. In 5 out of 9 cases of hysteria there was simultaneous abolition of the fascia lata reflex and of the flexor plantar response (Crocq's combined plantar phenomenon).

10. The behaviour of the fascia lata reflex is too variable in normal individuals to be of great value in the diagnosis of spinal localisation.

11. It is doubtful whether the reflex has its centre in the cord, because its behaviour in organic hemiplegia and in transverse lesions of the cord in most cases resembles that of the other cutaneous reflexes whose centre is in the cerebral cortex.

J. D. ROLLESTON.

INVERSION OF TRICEPS JERKS, CROSSED KNEE JERKS IN
(450) **AN OLD HEMIPLEGIC, POSSIBLY A TABETIC. (Inversion des réflexes tricipitaux, réflexe contralatéral du quadriceps chez un ancien hémiplégique, peut-être tabétique.)** A. SOUQUES and S. CHAUVET (Soc. de Neurol.), *Rev. Neurol.*, No. 10, May 30, 1912, p. 717.

A MAN of 67, with good history, who denied syphilis, had an attack of right hemiplegia with hemi-anæsthesia when 46; this progressively improved, and there is now no appreciable motor defect; sensibility has become normal, and the skin-reflexes are present. Moderate percussion of both olecranon tendons gives flexion at elbows. The right knee jerk is exaggerated and is accompanied by a slight crossed adductor jerk. Percussion of the left patellar tendon gives a somewhat brisk left knee jerk, and, in addition, a vigorous contraction of the contralateral quadriceps with strong extension of the leg. This crossed knee jerk is a little later than the direct (left) knee jerk. The Achilles jerks are

abolished. The left plantar reflex is extensor. Difficulty was experienced in studying the movements of the lower limbs, as they were partly involuntary and often bilateral. The left pupil reacted badly to light. The patient refused lumbar puncture and Wassermann reaction. LEONARD J. KIDD.

ASSOCIATED MOVEMENTS OF UPPER EYELID AND JAW.
(451) SYDNEY STEPHENSON, *The Ophthalmoscope*, Vol. x., No. 7, July 1912, p. 373.

FOUR years ago Stephenson recorded in the same journal (vi., p. 22) a case of synkinesis between the mandible and an upper eyelid not affected with ptosis, in a boy of 9 years; the other eyelid showed slight congenital ptosis. He here records a case of a lady of 41, who consulted him in July 1909 for symptoms referable to eye-strain due to hyperopic astigmatism. She stated that her left upper eyelid had been peculiar for as long as she could recollect. When 6 or 7 years old her father used to say that she "ogled her food" at meal-times. Stephenson found, on examination, that there was no ptosis, but with mandibular movements the left upper eyelid executed slight upward and downward excursions; these were more pronounced when lateral mandibular movements were made. Two years later Stephenson found the conditions described to be unchanged.

LEONARD J. KIDD.

SEA-SICKNESS AND THE PNEUMOGASTRIC. A. MAVERICK, *Med.*
(452) *Record*, 1912, i., p. 991.

SEA-SICKNESS and irritation of the pneumogastric are closely related. A continual rocking to and fro of the stomach, loaded or empty, is enough to excite nausea and vomiting from pneumogastric irritation, and hence the relief afforded by a tight binder or by pressure of the stomach against a hard object. Imagination aided by the special senses (sight of rising and falling vessel, smell of heated oil and bilge-water, and noise of engine) plays a part in bringing on an attack (*cf. Review*, 1908, vi., p. 311). Maverick recommends administration of atropine which stimulates the sympathetic, and antagonises the pneumogastrics An even more efficacious drug is adrenalin. A very severe attack in which atropine and strychnine injections had failed to give relief was soon cured by two intramuscular injections of adrenalin (♏ xv. of 1 in 1000 solution). J. D. ROLLESTON.

FACIO-SCAPULO-HUMERAL TYPE OF MUSCULAR DYSTROPHY
(453) **IN FOUR PATIENTS IN THREE GENERATIONS.** H. BATTY SHAW and P. J. EDMUNDS, *Proc. Roy. Soc. Med.*, Vol. v., No. 8, June 1912, (Clin. Sect.), p. 212.

THE four cases occurred in (1) mother, (2) son, (3) daughter, and (4) granddaughter (daughter of 3), but from the records it appears that the father of case 1, who died at the age of 77, also suffered from this condition as well as another daughter of case 1, a half-sister of 2 and 3. The malady would thus appear to occur in both males and females, beginning about puberty and being transmissible by either parent. Cases of muscular dystrophy without hypertrophy may survive to old age. A. NINIAN BRUCE.

A PECULIAR STATE OF ASTHENIA OF SHORT DURATION,
(454) **ENDING IN RECOVERY.** D. RIESMAN, *Journ. Amer. Med. Assoc.*, Vol. 58, No. 24, June 15, 1912, p. 1846.

ABOUT ten years ago Riesman reported to the Philadelphia Neurological Society the case of a hard-worked country physician, æt. 35, who, when in good health, suffering from only a slight cold, was suddenly seized with profound myasthenia of apparently all the voluntary muscles, with bradycardia, hypothermia (97°), and bradypnœa (10 to 12), but no psychic, sensory, or sphincter affections. These symptoms lasted three or four days; after ten days left facial palsy appeared, and lasted for ten days. Riesman saw patient two months after onset, and provisionally diagnosed temporary functional hypo-adrenalism; the facial palsy was held to be accidental. Recovery was complete in about two months.

Riesman records also two further similar cases, who showed low blood pressure; both recovered in a few days with rest in bed and 5 grs., three times a day, of supra-renal extract. He also recalls the fact that in his own student days he was suddenly seized one evening, during study, while feeling perfectly well, with coldness, weakness, T. 96°, P. 46, and sense of impending death; he has never had a similar attack. He has an interesting short discussion of the angeio-tonic and antitoxic functions of the chromaffin system, written with commendable caution.

LEONARD J. KIDD.

HERPES AURIS WITH FACIAL PARALYSIS. (Zona de l'oreille
(455) **avec paralysie faciale.)** DÉJÉRINE, TINEL, and HEUYER (Soc. de Neurol. de Paris), *Rev. Neurol.*, No. 6, March 30, 1912, p. 466.

AUTHORS record a case of a woman, æt. 48: four children living, no miscarriages; had an eruption of red patches, æt. 10, which was

suspected to be luetic. Sudden onset of right facial palsy on 11th January 1912 at noon during luncheon; noticed face drawn to left, and inability to close right eye; also could not taste on right side. No headache, fever, tinnitus, pain, or throat affection. The same night severe pains in concha, lasted many days. Next day pain in whole of right ear; all sounds seemed deadened; no vertigo or tinnitus; on third day fever, attributed to a sharp bronchitis and lasting several days. On fifth day herpetic vesicles on concha, which lasted several days and then faded away. Examination showed typical complete right peripheral facial palsy; total R.D. in all branches. Ageusia right lingual area; hypoacusis gone; vesicles cicatrised. At first there was almost complete anæsthesia of meatus and external auditory canal, of all concha, and neighbouring part of antihelix. Marked hypoæsthesia of lobule, helix, and upper part of antihelix; also, later, on hairy scalp behind ear. Slight hypoæsthesia on face, which lessened on passing from ear to median line. Authors hold that the almost completely anæsthetic area corresponds exactly with Ramsay Hunt's zoster zone of the geniculate ganglion. They suggest that the very slight sensory diminution on face in front of ear was due to the hypotonia of the cutaneous muscles and the consecutive feebleness of the dermal papillæ. They reject a partial lesion of the Gasserian and petrosal ganglia as operative in their case. They therefore conclude it was one of herpes of the geniculate ganglion. Two figures show the areas of anæsthesia and herpes. LEONARD J. KIDD.

A CASE OF ARACHNOID CYST FORMATION WITH COMPRES-
(456) **SION OF THE SPINAL CORD. OPERATION. RECOVERY. (Ein Fall von arachnoidaler Zystenbildung (Bindegewebszysten) mit Kompression des Rückenmarks. Operation. Heilung.)** L. BRUNS, *Neurol. Centralbl.*, Nr. 18, Sept. 16, 1911, S. 1026.

THE patient was a girl, aged 17, who suffered from severe pain on the right side at the level of the seventh and eighth intercostal spaces. Six weeks later a paralysis of the right leg developed, followed some months after by a rapid involvement of the left leg with loss of sphincter control and anæsthesia below the above level. The arms were unaffected, there were no cerebral symptoms, no deformity or pain on pressure over the spine, and an X-ray showed nothing abnormal. An intra-dural but extra-medullary tumour of the spinal cord was diagnosed. At the operation three small arachnoid cysts, which were removed, were found at the level of the fourth dorsal spine. Recovery of movement did not begin until two months later, and was nearly complete at the end of another five months.

On microscopic examination the wall of the cyst was found to consist purely of connective tissue, with no evidence of parasitic origin, and was probably of the nature of those described as "meningitis serosa circumscripta mit tumorsymptomen."

A. NINIAN BRUCE.

TRAUMATIC LESION OF THE CONUS MEDULLARIS. (Lesión traumática del cono medular.) (457) D. R. DEL VALLE y ALDABALDE, *Rev. de med. y chir. práct.*, 1912, xcv., p. 209.

THE patient was a man, aged 37, who had fallen one year previously from a height of 6 metres. On regaining consciousness he complained of pain principally in both sides of the pelvis and found that he had lost the use of his legs. The pain and paraplegia lasted a month and then gradually passed off. At the present time there is only slight weakness of the right lower limb necessitating the use of a stick. The other symptoms were paralysis of the bladder and rectum of four and a half months' duration, which prevented him from emptying his bladder completely or defæcating without laxatives or enemata. Sensibility to pain was diminished in the perineum, perianal region, midline of scrotum, dorsum of penis, and inner side of foot. The anal reflex, right knee jerk, and the tendo Achillis jerks were abolished. There was a trophic ulcer in the coccygeal region.

The condition was probably due to a hæmorrhage into the conus medullaris.

J. D. ROLLESTON.

A CLINICAL STUDY OF DEEP SENSIBILITY. (Sulla sensibilità profunda. Studio clinico.) (458) E. CEDRANGOLO, *Giorn. internaz. d. Sci. Med.*, 1912, xxxiv., p. 433.

IN 4 out of 18 tabetics examined by the writer bone sensibility was normal. Three of the 4 had normal sensibility on forcible extension of the joints, in 1 articular sensibility was completely lost in the knee and diminished in the elbow. In 14 bone sensibility was more or less considerably affected, the lower limbs being most frequently involved, the upper limbs and trunk rarely. In 5 cases of tabetic arthropathy vibratory anæsthesia was found in the affected joints as well as insensibility on forcible extension. In the examination of 12 hemiplegics, in 5 in whom superficial sensibility was normal, articular or vibratory sensibility was more or less impaired, the latter much more than the former. Four cases of spinal syphilis, 3 of chorea, and 1 each of Friedreich's disease, musculo-spinal paralysis, and disseminated sclerosis showed no loss of vibratory sensation. In 3 cases of paralysis agitans vibratory sensation was present, and in 1, an old standing case, absent.

In 4 cases of diabetes who also had loss of knee jerks, bone sensibility was lost in the lower limbs and preserved in the upper limbs. In 2 of these cases articular sensation was lost, and in 2 diminished. The writer suggests that the conducting fibres of bone sensibility run in the posterior columns.

J. D. ROLLESTON.

THE GASTRIC CRISES OF TABES. JULIUS FRIEDENWALD and T. F. (459) LEITZ, *N. Y. Med. Journ.*, July 6, 1912, p. 9.

FORTY-TWO cases of tabes in which attacks of gastric crises occurred are here tabulated. The patients were all males, whose ages ranged from 29 to 64 years. The attacks of gastric crises were noted 5 times as an initial symptom of the tabetic disease. Severe pain was noted in 11 cases, was moderate in 9, and variable in 22. Severe attacks of vomiting were observed in 23 instances, moderate in 12, and variable in 7. The general health of the patient was affected as a result of the crises in 25 cases. The gastric secretion was obtained during the crises in 35 patients. It contained a normal amount of acid in 6 cases, hyperchlorhydria existed in 13, hypochlorhydria in 10, and the results were variable in 6. During the interval between the attacks the gastric secretion was normal in 14 cases, hyperchlorhydria was present in 12 and hypochlorhydria in 10 instances.

A. NINIAN BRUCE.

TABES IN TWO BROTHERS. (**Deux frères tabétiques.**) O. CROUZON, (460) *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 497.

THE elder brother, aged 56, contracted syphilis at 22. Diminution of vision occurred at 45, and lightning pains four years later. At present the patient shows the characteristic gait, Argyll Robertson pupil, left ptosis, loss of tendon reflexes, and Romberg's sign. The younger brother, M——, aged 42, contracted syphilis from a different source at 20. Gastric crises occurred at 26, followed three years later by lightning pains and incontinence of urine. At present he shows loss of tendon reflexes, Argyll Robertson pupil, and Romberg's sign.

As in Heitz's case (*v. Review*, 1912, x., p. 289), though the syphilis had been contracted from different sources, the development of tabes in the two brothers was possibly due to a special weakness of the nervous system.

On the other hand, another brother who had acquired syphilis from the same source as M——, showed no disturbance of reflexes nor Argyll Robertson pupil, and appeared to enjoy good health.

He would not submit to lumbar puncture nor to Wassermann's reaction. J. D. ROLLESTON.

SIMPLE AND COMPLICATED PRURITUS IN TABES. (Contribu-
(461) **tion à l'étude du prurit tabétique simple et compliqué.)** J. DUPREY, *Thèses de Paris*, 1911-12, No. 148.

THE thesis contains the histories of twenty-seven cases, one of which is original. This case was in a woman, aged 46, in the pre-ataxic stage, in whom pruritus was associated with urticaria (*cf. Review*, 1911, ix., p. 677). The parts affected were those irritated by the clothing, viz., the neck, waist, groins, and knees. Relief followed injections of grey oil, but as the itching diminished, the lightning pains showed a tendency to increase.

J. D. ROLLESTON.

"606" AND TABES. ("606" **et tabes.**) B. ZORINE, *Thèses de Mont-*
(462) *pellier*, 1911-12, No. 5.

THE thesis contains the histories of (*a*) eleven cases, six of which are original, which benefited from the treatment; (*b*) three cases in which there was no improvement; (*c*) five cases in which injections of "606" was followed by death within an interval varying from four days to three weeks.

The following is a brief abstract of the six original cases which were observed in Vedel's service at Montpellier.

1. Tabes incipiens. No improvement from mercury and potassium iodide. After three intravenous injections of "606" improvement of general condition, gait, and urinary and intestinal troubles.

2. Syphilitic treatment for eleven years. Inequality and sluggishness of pupils, diminution of knee jerks, slight incoordination, lightning pains. Two intravenous injections of "606" caused lightning pains to disappear, and produced improvement in general condition.

3. Syphilitic treatment for twelve years. Argyll Robertson pupil and vesical paresis for four years. Lightning pains in spite of soluble injections of mercury. Intramuscular injection of "606" relieved the pains, and two intravenous injections allowed the patient—a medical man—to resume his professional work. In the other three cases a very marked improvement in the general condition was noted. The lightning pains were generally much relieved, and often suppressed. The headache, disturbance of gait, irregularity of pupils, vesical paresis, and Romberg's sign disappeared after the first few injections. J. D. ROLLESTON.

(463) MULTIPLE SPINAL CORD TUMOURS IN RECKLINGHAUSEN'S DISEASE SUCCESSFULLY TREATED BY OPERATION, WITH REMARKS ON THE CHEMICAL AND CYTOLOGICAL CONDITION OF THE SPINAL FLUID IN TUMOURS OF THE BRAIN AND CORD. (Über einen operativ geheilten Fall von mehrfachen Rückenmarksgeschwülsten bei Recklinghausenschen Krankheit nebst Bemerkungen über das chemische und cytologische Verhalten des Liquor cerebrospinalis bei Gehirn- und Rückenmarksgeschwülsten.) V. REICHMANN, *Deut. Zeitschr. f. Nervenheilk.*, 1912, xliv., p. 95.

A MAN, aged 20, was admitted to hospital in February 1909, for spastic paralysis of the lower limbs. The symptoms had first developed three years previously, simultaneously with the appearance of skin tumours on the trunk and limbs. The presence of nystagmus suggested multiple sclerosis, and the diagnosis was further misled by one of the skin tumours proving to be a lipoma. Lumbar puncture in November gave issue to a heavy yellow fluid which coagulated in a few seconds into a jelly-like mass. Before operation in the following June, lumbar puncture was performed eleven times in all, and the albumen content was found on each of the six occasions when it was accurately estimated to be remarkably high, ranging from 3·08 to 4·6 per cent. A cytological examination showed about three times as many mononuclears as polymorpho-nuclears, and some isolated macrocytes. No epithelial cells were found. In February 1910 sensory disturbances first occurred, consisting in diminished painful and thermal sensibility, most marked on the left side, and extending from the umbilicus to the feet, the back of which was hyperalgesic. As the spasms in the lower limbs became excessively violent, an operation was performed in June 1910. After removal of the laminæ of the 9th to the 5th dorsal vertebræ, two tumours were found compressing the right side of the cord in the region of the 3rd to the 5th dorsal vertebræ. After their excision, a fusiform swelling in the cord was found, and after an incision in the midline a third encapsuled tumour was shelled out. The immediate result of the operation was flaccid paralysis and complete anæsthesia from the feet to the nipples, together with constipation and retention. Gradual improvement, however, occurred, so that by the end of 1911, the patient could walk and run, and work from morning to evening as an agricultural labourer. The cerebro-spinal fluid in August 1911 was quite clear, and showed only a slight excess of albumen. The skin and spinal cord tumours were probably neurofibromata, though the actual presence of nerve fibres could not be demonstrated. The nystagmus was probably congenital. From a consideration of this case and others in the literature, Reichmann concludes that a cerebro-spinal fluid with the characters described

above is only found in processes which exercise pressure on the cord, and not in any other tumours, especially those which lead to an early softening of the cord. J. D. ROLLESTON.

PALPEBRAL TUMOUR AND PARALYSIS OF THE SIXTH NERVE IN RECKLINGHAUSEN'S DISEASE. (Tumeur palpébrale et paralysie de la vi^e^ paire dans la maladie de Recklinghausen.) AUBINEAU and CIVEL (of Brest), *Arch. d'Ophtalmologie*, 1911, **xxxi.**, p. 808.
(464)

MAN, aged 33, mentally defective. No family history of tumours, but eldest sister in lunatic asylum. Tumour for last seven or eight years, involving root of nose, internal angle of left eye, left upper lid and adjacent frontal region. The lid was raised with difficulty and revealed complete paralysis of vi. Deviation of tongue to left, probably due to tumour on xii. Skin of trunk covered with irregularly distributed pigment spots and tumours. The palpebral tumour was removed, and was found to be a neuro-fibroma.
J. D. ROLLESTON.

RECKLINGHAUSEN'S DISEASE. E. PISKO, *Amer. Journ. Derm.*, 1912, **xv.**, p. 322.
(465)

A VERY brief record illustrated with two photographs of a case in a woman aged 47, in whom the first nodules appeared in childhood.
J. D. ROLLESTON.

A CASE OF RECKLINGHAUSEN'S DISEASE. (Su di un caso di morbo di Recklinghausen.) E. BECCHERLE, *Gazz. d. osp.*, 1912, **xxxiii.**, p. 627.
(466)

THE patient was a man, aged 50, who had had café-au-lait spots and cutaneous nodules since childhood, and a tumour in the right supraorbital region for the last ten years. Other symptoms were cranial asymmetry, dorsal kyphosis, and defective intellect. No biopsy. J. D. ROLLESTON.

CASE OF GANGLION NEUROMA OF THE MESENTERY, PARTLY EMBRYONIC IN STRUCTURE. H. MACNAUGHTON-JONES, *Lancet*, June 22, 1912, p. 1678, and *Proc. Roy. Soc. Med.*, Vol. v., No. 8, June 1912 (Obstet. Sect.), p. 287.
(467)

A LARGE nodulated tumour extending for some nine inches between the layers of the mesentery was removed from a girl of 18, in whom a growth had been observed since the age of 5, but in whom it had recently been increasing in size.

The greater part of the mass consisted of firm tissue, composed of bundles of nerve fibres, almost all medullated. The tissue also contained groups of encapsulated nerve cells, the fibres surrounding the cells having a very delicate sheath. This portion of the tumour had the characters of a simple "neuroma ganglionare" connected with the sympathetic system. There were also, however, portions composed of soft, friable tissue, seen to be composed, microscopically, of a large number of cells lying in a matrix formed of a feltwork of fine fibrils. The structure resembled that of a glioma with a few giant glia-cells, and seemed to be of the nature of embryonal sympathetic tissue. J. H. HARVEY PIRIE.

ACUTE ANTERIOR POLIOMYELITIS. Clinical Observations of
(468) **Recent Cases.** F. E. BUTLER, *N.Y. Med. Journ.*, July 6, 1912, p. 18.

TWO fatal cases are here recorded. The first was of the meningeal type and occurred in a child 6½ years of age. The cerebro-spinal fluid resembled that found in cases of tuberculous meningitis, but did not kill a guinea-pig in eight weeks. The second case was of the bulbar type, and occurred in a child 4½ years old. A sister and a cousin of this case were also affected, but recovered. The infection in the last three cases appears to have been from the same source. A. NINIAN BRUCE.

THE RAPIDLY FATAL INSTITUTIONAL FORM OF ACUTE POLIO-
(469) **MYELITIS.** JACOLYN VAN VLIET MANNING, *N.Y. Med. Journ.*, June 22, 1912, p. 1322.

THE author proposes the following reclassification of types of acute epidemic poliomyelitis:—

1. The arrested type.
2. The spinal paralytic type.
3. The ascending spinal paralytic type.
4. The acute bulbar type.
5. The encephalic type.
6. The meningeal type.
7. The neural type.
8. The rapidly fatal institutional type.

He then gives a few words about each of these types, the last being that in which the disease appears in the form of sudden and deadly asphyxia; the cases tending to occur in small epidemics, in which, after a few hours' illness, death takes place suddenly with the signs of acute asphyxia. A. NINIAN BRUCE.

THE USE OF CELLULOID SPLINTS IN THE TREATMENT OF
(470) **CASES OF POLIOMYELITIS.** F. E. BATTEN, *Lancet*, July 13, 1912, p. 80.

THIS note, which is illustrated, deals with the value of celluloid for splints in the treatment of poliomyelitis both during the acute and chronic stages of the disease. Instructions are given for their manufacture and application. They have the advantage of being strong and rigid and yet very light in weight. They can be worn without discomfort both day and night; many patients can walk in them; and lastly, they are cheap as compared with most other forms. They have the disadvantage of being inflammable, although by no means highly so. J. H. HARVEY PIRIE.

MACROSCOPICALLY LATENT MENINGITIS AND ENCEPHAL-
(471) **ITIS IN ACUTE INFECTIONS. (Über makroskopisch latente Meningitis und Encephalitis in akuten Infektionskrankheiten.)** S. OSEKI, *Beitr. z. path. Anat. u. z. allg. Path.*, 1912, lii., p. 540.

OSEKI reviews the literature and records four groups of cases in children and adults suffering from pneumonia, tonsillitis, tuberculosis, and whooping cough. In the first group meningitis was diagnosed clinically, but none was found macroscopically post mortem. Microscopical examination, however, showed meningitis and encephalitis. In the second group in which meningitis was diagnosed clinically, there was microscopical evidence of encephalitis only. In the third group meningitis only was found. The fourth group contained four cases of clinically latent meningo-encephalitis or meningitis in pneumonia, the condition being first discovered microscopically post mortem.

J. D. ROLLESTON.

WHEN TO OPERATE IN PERMEATING MASTOID MENINGITIS.
(472) J. B. PIKE, *Practitioner*, June 1912, p. 875.

THE author wishes to place mastoidectomy among the exploratory operations, and quotes a case with no soft spot in the mastoid, but with headache, vomiting, and slight rise of temperature, in which pus was found on operation, and the patient recovered; while in a second somewhat similar case operation was not performed and the patient died, with symptoms of general basic meningitis.

Exploration of the antrum is called for in cases of earache with headache, listlessness, and lethargy, and perhaps slight rise of temperature and a tendency to sickness. Tenderness must not be depended upon as a constant symptom, and is most likely to be

present when pus is approaching the surface. There are no special dangers of an exploratory operation, and no serious sequelæ.

A. NINIAN BRUCE.

THE ATROPHIC FORM OF LITTLE'S PARALYSIS. E. A. RICH,
(473) *Journ. Amer. Med. Assoc.*, Vol. lix., No. 3, July 20, 1912, p. 175.

THREE cases are here described. The author concludes that the atrophic form of cerebral palsy is a distinct entity, the characteristic difference between it and the usual form of Little's disease being the lack of development of all parts of the body except the skeleton, the patients thus exhibiting a train of symptoms not present in the usual cerebral spastic palsies. The prognosis is more grave than in the other forms, the above cases dying between the third and fourth years, one from inanition, one from tuberculous meningitis, and the third from no discernible cause. Only one case came to autopsy, and showed the usual gross pathological derangements with absence of the sella turcica and the pituitary body.

A. NINIAN BRUCE.

THE VASCULAR LESION IN SOME CASES OF MIDDLE MENIN-
(474) **GEAL HÆMORRHAGE.** F. WOOD JONES, *Lancet*, July 6, 1912, p. 7.

THE writer is of opinion, along with several other anatomists, that the grooves upon the cerebral surface of the parietal bone are caused more by the interdural venous sinuses than by the middle meningeal artery, and considers it is only in rare cases—those in which excessive violence has produced linear or depressed fractures—that the artery is wounded. Where the violence is trivial and no fracture is caused, the compression is due to a hæmatoma, the blood coming from the veins. Serial sections of twelve bleeding points in three fatal cases have shown lacerations of the venus sinuses, but never any arterial lesion. This is in keeping with the clinical accounts of the bleeding encountered at operations on such cases (v., p. 369).

J. H. HARVEY PIRIE.

ON THE PHYSIOPATHOLOGY OF THE FRONTAL LOBES. (Con-
(475) **tributo alla fisiopatologia dei lobi frontali.**) E. CURTI, *Riv. ital. di Neurop., Psychiatr., ed Elettroter.*, 1912, v., p. 220.

CURTI records two cases in one of which the lesions were due to trauma and the other to a tumour, and comes to the following couclusions:—

1. A lesion of the prefrontal lobes can be diagnosed by the following syndrome — progressive enfeeblement resulting in complete loss of memory, apathy, lassitude, stupor, mental confusion, incoherence, melancholy, incapacity for forming complex ideas, lack of initiation, speech correct but great limitation of associative processes, loss of critical power, defect of emotivity and affectivity, neglect of self, states of excitement, irritability, and sometimes of depression.

2. Changes in the prefrontal lobes do not give rise to motor symptoms. J. D. ROLLESTON.

THE OPERABILITY OF CEREBRAL ENDOTHELIOMA, WITH THE REPORT OF A SUCCESSFUL CASE. GEORGE L. WALTON and JOHN HOMANS, *Boston Med. and Surg. Journ.*, Vol. clxvi., No. 26, June 27, 1912, p. 959.
(476)

A CASE is reported of a man, aged 37, who had an epileptic attack in 1908 during which general convulsive movements occurred and unconsciousness which lasted half an hour. These attacks recurred at intervals afterwards, always starting in the right hand and spreading to the shoulder, with great pain in that region, and followed by loss of consciousness. At other times the right hand twitched, but no unconsciousness followed. On examination both knee jerks and Achilles jerks were normal, no Babinski; pupils and fundus normal; all movements of arms and fingers normal, no loss of sensation and no astereognosis. Articulation perfect, but mistakes occurred in writing, and his memory became somewhat treacherous for recent events. From November 1909 to March 1912 he had seventeen attacks. For the last year he had suffered from frequent and severe headaches. There was no optic neuritis nor other cerebral symptom, but operation was undertaken in the hope of finding some irritative lesion, and a tumour was then found growing from the dura and pressing upon the brain substance. It was removed and found later to be an endothelioma, probably grown from the dura. The wound healed without incident. The day following the operation there was complete paralysis of the arm and moderate paralysis of the face with inability to articulate and trouble in swallowing. These gradually passed off. A. NINIAN BRUCE.

THE PINEAL BODY. (Die Zirbeldrüse.) A. MÜNZER, *Berlin. Klin. Wchnschr.*, Bd. 48, Sept. 11, 1911, s. 1669.
(477)

THIS paper contains a long and valuable discussion of the symptomatology of pineal tumours, together with a shorter one

on the structure, comparative anatomy, and functions of the pineal body; the anatomical and histological part is based mainly on Marburg's work. The author accepts the teaching of Marburg that hyper-pinealismus causes adiposity and hypo-pinealismus premature sexual development. A list of twelve conclusions is given, but they bring out no special new points of importance. The chief conclusions are that the pineal secretion inhibits the onset of puberty; delays the growth of the body in length, the development of the genital apparatus, and the secondary sexual characters, and checks mental development. The pineal is correlated with the sex-glands and the pituitary. Nothing certain is known of its relationship to other glands.

LEONARD J. KIDD.

ENDOTHELIOMA OF THE PITUITARY GLAND WITH INFANTILISM. (478) GEORGE E. RENNIE, *Brit. Med. Journ.*, June 15, 1912, p. 1355 (3 figs.).

THE following case is of interest as the symptoms were mainly urinary, namely high arterial tension, large amount of pale urine of low specific gravity, headache and vomiting, and a diagnosis of chronic interstitial nephritis was first made.

The patient, when seen in 1907, was 16 years of age, undeveloped, no hair on face, axillæ, or pubis, skin smooth, genital organs infantile and voice effeminate. Frequent headaches, intelligence and eyesight good. Visual fields normal and no optic neuritis. Reflexes not affected. Above urinary symptoms suggested kidney disease.

In 1909 no further increase in development. Headache, cerebral vomiting, memory defective, ocular movements normal, but post-neuritic atrophy in both discs and definite bitemporal hemianopsia. Tendency to fall backward on trying to walk. Six days later he had two or three fits in which he became completely unconscious. Lumbar puncture showed sterile fluid, no increased pressure, no organisms, and only a few lymphocytes. Patient died a few months later, and an endothelioma was found, about the size of a large walnut, invading the pituitary gland, very little of the normal glandular tissue of which remained.

A. NINIAN BRUCE.

ADIPOSITAS CEREBRALIS IN ITS RELATION TO TUMOUR OF THE HYPOPHYSIS. (479) ALFRED GORDON, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 3, July 20, 1912, p. 171.

THE term "adipositas cerebralis" is applied to a condition characterised by a general obesity dependent on tumours or other

diseases of the brain. The condition was first emphasised by Fröhlich in 1901 and associated with the pituitary gland. Adiposity and genital hypoplasia are the two characteristic manifestations of the so-called Fröhlich's syndrome, or dystrophia adiposo-genitalis.

A case is here described of a man, aged 31, who was perfectly well until the age of 23, when a drooping of the left upper eyelid was observed. He then developed diplopia, with gradual weakness of vision of the left eye, vertigo and headache which was confined to the left side of the forehead. He remained stationary in this condition for two and a half years, after which he developed serious mental phenomena, suddenly losing consciousness on the street. He usually remained confused for several days after such attacks. Next he showed intention tremor, increased tendon reflexes, lateral nystagmus, and optic atrophy of left fundus. Wassermann reaction negative. Later a bitemporal hemianopsia was found followed by total optic atrophy of the left eye and evidence of optic neuritis in the right eye. Slight glycosuria was present and the genitalia were infantile.

He remained like this for three years, and then lost sight in his right eye and a paretic condition of the left arm made its appearance, followed by a similar condition in his left leg, with Babinski and ankle clonus. He also suffered from excessive perspiration and loss of smell in the right nostril. He was extremely poor, and ate very little food, but in spite of this he now began to grow enormously fat. He developed convulsive fits, during one of which he died.

At the post-mortem a large angiosarcoma was found invading the pituitary gland, of which no healthy tissue could be found. It extended backward as far as the foramen magnum, and as far forward as the sphenoidal fissure. It had destroyed the sella turcica, penetrated the posterior nares and pressed upon the optic tracts and the surrounding structures of the brain.

A. NINIAN BRUCE.

THE SURGERY OF THE HYPOPHYSIS. (Chirurgie de l'Hypophyse.)
(480) RENÉ TOUPET, *Rev. de Chirurgie*, Vol. 45, No. 6, June 10, 1912, pp. 899-945 (19 figs).

TOUPET'S thesis on this important subject (Paris, 1911) was based on twenty-four recorded cases: the present excellent review is based on fifty-six cases which are given in abstract at the end of the paper. The modes of approach to the hypophysis are increasing in number, and the technique is being greatly improved. Toupet describes seven routes: M'Arthur has since

described another (*v. infra*). Toupet gives the following four headings:—

1. *Pathological anatomy of hypophysial tumours.*—All the autopsy records omit reference to the points that are of capital importance to the surgeon, viz., the exact relations of the tumour and the sphenoidal sinus. Toupet refers to the difficulty of estimating the frequency of intra-cranial prolongations: these are of the greatest surgical importance. Of the fifty-six cases twenty-three died; only fourteen have published accounts of autopsy: only twenty-eight cases were examined histologically. Cysts are the most favourable for operation; puncture is sufficient, and a large path of approach is not needed.

2. *Modes of approach to the hypophysis.*—The intra-cranial route is "anatomically illogical and practically unprofitable" (the only two cases, viz., Horsley's and M'Arthur's, were failures). It does not allow of removal of intra-cranial prolongations, as its adherents claim it does: Toupet doubts if a tumour of the hypophysis can be removed by this route without causing irreparable damage. He gives statistics which show that the fear of meningitis by the extra-cranial route is more theoretical than real, and has been exaggerated. The pharyngeal and maxillary routes are merely cadaver operations; the palatine he thinks is inferior to the nasal and the endo-nasal; so also is the naso-orbital which causes enormous mutilation. The "bucco-nasal" is really nasal. The nasal is the sixth method considered. The endo-nasal is best of all, conservative, and economical. This section ends with an account of (1) risks of operation, which are slight if the technique be good, (2) after-treatment, (3) post-operative complications.

3. *Results of hypophysectomy.*—Mortality is high at present, *i.e.*, twenty-one deaths out of fifty-four extra-cranial cases, and two out of two intra-cranial. The immediate and the remote results are studied. Results on headache are "superb"; complete disappearance in twelve out of fourteen cases, in one marked relief, in only one no relief (time of survival only thirty-six hours).

Benefit is mentioned in other conditions, *i.e.*, acromegaly, Fröhlich's syndrome, intellectual troubles, somnolence, and ocular symptoms. As to remote effects of operation, the records are few; most cases showed benefit for many months; in only one was early benefit followed by return of headache and acromegaly. Conclusion: results are encouraging: our hope lies in perfection of technique, and early intervention before the case is inoperable.

4. *Indications for operation.*—One should operate if the diagnosis of tumour of the hypophysis be established, if radiography show

a sella clearly enlarged towards the sphenoidal sinus, but on the one condition that operation is feasible by the nasal route, and that the tumour bulges towards the sinus. Prognosis depends on existence of intra-cranial prolongations; the remote effects depend on the nature of the tumour, but we must remember that tumours held to be malignant have not always returned even after many years. The paper ends with some valuable remarks on the variations of the sella (figured), and on Schloffer's teaching on the prognosis of operation in the particular types of sella; the subject of radiography of intra-cranial tumours is also touched on.

LEONARD J. KIDD.

AN ASEPTIC SURGICAL ACCESS TO THE PITUITARY BODY
(481) **AND ITS NEIGHBOURHOOD.** L. L. M'ARTHUR, *Journ. Amer. Med. Assoc.*, Vol. lviii., No. 26, June 29, 1912, p. 2009.

THE author, after briefly discussing the various methods of reaching the pituitary and pointing out that no one route is applicable to all cases, proposes the following as offering greater facilities of access with less trauma to vital structures and less danger of sepsis.

An incision is made, preferably over the right side, beginning at the inner end of the eyebrow and carried through the eyebrow to the external aspect of the external angular process, cutting through all the tissues down to the bone. A perpendicular incision is then made at the mid-nasal end about 3 to 4 cm. long. All the tissues of the flap, including the periosteum, are then loosened from the bone and reflected upward. In a similar manner the periosteum of the orbital roof is loosened, and the orbital contents displaced downwards. A small opening is then made by a trephine in the frontal prominence, and about half of the orbital roof removed. The remaining portion of the orbital roof close to the optic foramen is then bitten away, extreme care being taken not to injure the dura. Orientation becomes easy once the anterior clinoid process and the free edge of the wing of the sphenoid is reached. The incision through the dura should be made about 0·5 cm. above the level of the anterior fossa floor. The pituitary field and its neighbourhood now come into view.

Having met the indications, the frontal lobe can be dropped, the frontal fragment replaced, the external periosteum stitched anteriorly, and the soft tissues sutured carefully into place. Being in the hair line of the eyebrow and the normal frontal furrow the scar is almost unobservable.

A. NINIAN BRUCE.

OPERATION ON THE HYPOPHYSIS FOR A TUMOUR OF SELLA
(482) **TURCICA WITH ACROMEGALY: AUTOPSY. (Une intervention sur l'hypophyse pour tumeur sellaire avec symptômes acromégaliques.)** C. GORIS, *Le Névraxe*, Vol. 13, F. 1, June 15, 1912, p. 99 (3 figs.).

THE outstanding feature of this case was the intolerable severity of the unilateral cephalalgic attacks. A sister of the patient had severe headaches; his mother died of tuberculosis; family history otherwise unimportant. A man of 33 suffered eight years ago from "digestive troubles"; three years ago attacks of vomiting, which have lately ceased. For two years violent attacks of right intermittent cephalalgia: he feels as if the inside of his head were being torn out; at this time right exophthalmos came on: never any vertigo. For one year progressive blindness of right eye: never any hemianopia while under oculist's observation: left eye vision normal. In October 1910 right eye was removed without relief to pains; no report was obtained by the author from the oculist as to state of fundus or of removed globe. In April 1911, when first seen by author, patient was a typical acromegalic: glycosuria was present. Radiography showed great enlargement of sella turcica. At this time the right cephalalgic attacks occurred many times a day, and wakened patient as often as thirty times a night. Operation was by the orbito-nasal method of Schloffer-Eiselsberg: the technique, fully described, was modified in one particular: the operation was very bloody. It gave complete relief from pain till noon next day, then delirium, and death on evening of second day, with symptoms of subacute meningitis. The tumour was a sarcoma invading the hypophysis secondarily: islets of hypophysial cells are figured in the midst of sarcomatous cells. There is a discussion of hypophysial syndromes, but this teaches nothing new. LEONARD J. KIDD.

AUTOPSY ON A CASE OF TUMOUR OF SELLA TURCICA WITH
(483) **ACROMEGALY. (Autopsie d'un cas de tumeur sellaire avec symptômes acromégatiques.)** A. VAN GEHUCHTEN, *Le Névraxe*, Vol. 13, F. 1, June 15, 1912, p. 109 (4 figs.).

AUTOPSY on the case of Goris (*v. supra*) was performed twenty-four hours after death. An enormous lobulated tumour was found, which curved round the right cavernous sinus. On removal of the brain, the tumour was divided into two parts: one adhered to the dura of base, the other to lower aspect of brain itself. The former penetrated beneath dura and occupied the whole of the right cavernous sinus; it traversed the sphenoidal fissure as far as the orbit. The sella, greatly widened, measured 3 cm. in all directions.

The part adherent to the brain was easily enucleated: it left a vast deep cavity. A long discussion of the changes found follows. The author concludes that the tumour grew in the right cavernous sinus; he shows that the right olfactory paths were, without doubt, destroyed; unfortunately, smell had not been tested clinically. The tumour weighed 38 g., and could not have been removed by the sphenoidal route. The question of the differential diagnosis between primary tumours of the hypophysis and parahypophysial tumours is discussed. The paper ends with remarks on the disturbances of function of the hypophysis and on the pharyngeal hypophysis, and a reference to the rare case of Erdheim (Ziegler's *Beiträge*, 1909) of hypophysial tissue present in the thickness of the sphenoid bone itself. The author concludes that experimental study is unlikely to be of great help, because not only are lesions of neighbouring parts thus produced, but also it is practically impossible to extirpate the pars glandularis and yet leave the pars nervosa absolutely intact. Therefore we must strive to make our clinical observations as exact and complete as possible.

LEONARD J. KIDD.

(484) **THE TREATMENT OF SYPHILITIC DISEASES OF THE NERVOUS SYSTEM BY SALVARSAN.** JOSEPH COLLINS and ROBERT ARMOUR, *Journ. Amer. Med. Assoc.*, 1912, lviii., p. 1918.

THE authors report a positive Wassermann reaction in 100 per cent. of the blood of general paretics and taboparetics, and in 92 per cent. of the cerebro-spinal fluid (1 c.c. of cerebro-spinal fluid being used). In 86 per cent. an excess of globulin was found, and in 71 per cent. an excess of cells.

In tabes, a positive Wassermann reaction was found in the blood in 66 per cent. of cases, in the cerebro-spinal fluid in only 41 per cent.

In cerebro-spinal lues, the blood gave a positive reaction in 88 per cent. of cases, the cerebro-spinal fluid in 43 per cent. A globulin excess was found in 86 per cent. of these cases, and an excess of cells in 70 per cent.

All these four reactions may be affected in different ways by treatment.

The average dose of salvarsan given was ·6 g. intravenously. If there was evidence of cardiovascular degeneration, half this dose was given. If the first dose produced no effect it was repeated; if it was followed by indications of cessation of activity the second dose was delayed from six weeks to three months. A short description of the method used for intravenous and intramuscular injection is given, the former being recommended.

Of 36 cases of tabes treated, 22 showed striking improvement. In 2 cases of tabo-paresis great improvement took place, but in 7 cases of general paresis, only 1 temporarily improved.

Nine cases of meningomyelitis showed great improvement, as also did 2 out of 6 cases of cerebral endarteritis of luetic origin, and 1 of 3 cases of spinal meningitis.

The authors point out that the patient may be clinically quite well after salvarsan administration, while the laboratory tests show the necessity for further vigorous treatment, and conclude that they are convinced that the treatment of diseases of the nervous system that flow out of syphilis is far more satisfactory with salvarsan than with mercury. A. NINIAN BRUCE.

THE EFFECTS OF SALVARSAN ON THE EYE. ROBERT G. (485) REESE, *N.Y. Med. Journ.*, June 29, 1912, p. 1356.

SALVARSAN is a powerful symptomatic remedy for the treatment of luetic eye lesions. Its action is more rapid than that of mercury, which it should not displace, except in selected cases. Intravenous injection is best. It should not be given in simple, spinal, non-inflammatory atrophy of the optic nerve. A. NINIAN BRUCE.

NEOSALVARSAN. JAMES M'INTOSH and H. B. PARKER, *Lancet*, July (486) 13, 1912, p. 82.

NEOSALVARSAN (914) is a yellow powder, less fine than salvarsan, which, if dropped into a vessel of water, instantly disperses and dissolves. Like salvarsan, it readily oxidises into a highly toxic compound, but this change can be readily detected, as it is accompanied by an alteration in colour from orange yellow to yellow ochre.

Salvarsan is a soluble acid salt, to which soda must be added before use. This first produces a heavy precipitate, the "neutral suspension," which redissolves on the further addition of alkali. Neosalvarsan is entirely neutral and dissolves in water to form a neutral solution, in which form it is ready for use.

Neosalvarsan is administered intravenously in a stronger solution than salvarsan, and bacterium-free distilled water and not bacterium-free saline solution is used as the solvent. It is claimed also that while the therapeutic effect of the new preparation is, perhaps, greater than that of the old, its toxicity is undoubtedly diminished.

The authors were unable to demonstrate any striking difference in toxicity between the two drugs when applied to animals, but

find that the toxic symptoms following injection in man are greatly lessened. They also find that neosalvarsan is actively parasitical in dilutions up to 1 in 500,000 in half an hour. A similar experiment with salvarsan dissolved with the minimum amount of alkali was from five to ten times less active.

The effect upon the Wassermann reaction is similar to that of salvarsan. Generally in primary syphilis two initial doses may be given, followed by a third at an interval of four weeks. In secondary syphilis three injections will be sufficient at first, with a fourth eight weeks later; and in tertiary syphilis the treatment should be continued every two to three months after the initial course until a negative Wassermann reaction has been obtained.

A. NINIAN BRUCE.

NEOSALVARSAN. A Preliminary Report on Ehrlich's New Pre-
(487) **paration.** A. G. RYTINA, *N.Y. Med. Journ.*, June 29, 1912, p. 1357.

NEOSALVARSAN is a highly soluble and absolutely neutral compound. The clinical results are just as effective, if not more so, than those of salvarsan. Injections are free from the severe constitutional and local reactive phenomena that often follow injections of salvarsan. On account of the neutral reaction, the preparation lends itself well to intramuscular injection, thereby allowing a more prolonged and protracted action. A. NINIAN BRUCE.

A COMPARISON BETWEEN FLEMING'S (HECHT'S) MODIFICA-
(488) **TION AND THE WASSERMANN TEST.** R. DONALD, *Lancet*, June 29, 1912, p. 1752.

THIS modification was put forward as a simplification suitable for workers in small institutions and requiring only very minute quantities.

The author has given the method a long series of trials, and compared the results with standard controls. He finds it very unsatisfactory, the hæmolytic system being precarious, and, even when the controls are hæmolysed, the results are often indefinite or are failures to indicate proved syphilis.

J. H. HARVEY PIRIE.

THE EARLY DIAGNOSIS AND TREATMENT OF EPILEPSY.
(489) E. FARQUHAR BUZZARD, *Lancet*, May 25, 1912, p. 1401.

IN this paper Dr Buzzard records a number of cases of "embryonic epilepsy," and lays especial stress upon the importance of recognising such conditions, since, under suitable regular treatment,

the prognosis is so much more favourable than is commonly held to be the case in epilepsy. The symptoms will, in no two cases, be alike, but in all there is this in common, that attacks are absolutely sudden in their onset, that they occur when the patient is feeling perfectly well, and, most important of all, that in each individual each attack is identical in character with the last. In the majority the recovery is also sudden and complete.

Exaggerations of the "regional jerks"—the single momentary twitches which many persons experience just as they are dropping off to sleep—is not infrequently a symptom of the embryonic stage of epilepsy.

In connection with treatment bromides are our most valuable weapon, but combination with other drugs are often serviceable, each patient being treated on his own merits, early and perseveringly. J. H. HARVEY PIRIE.

PSYCHIATRY.

THE TREATMENT OF GENERAL PARALYSIS WITH TUBERCULIN. (Sulla cura della paralisi progressiva con la tubercolina.) (490) P. BATTISTESSA, *Riv. ital. di Neurop. Psichiatr., ed. Elettroter.*, 1912, v., p. 117.

BATTISTESSA employed the tuberculin treatment recommended by Wagner and Pilcz in eight cases. Hypodermic injections were given every other day, consisting of 1 per cent. of tuberculin (A.T.), 4 per cent. of glycerine, and 5 per cent. of sterilised water, starting with a dose of 0·01, and gradually increased until 0·3 was reached. In six symptoms of dementia were well marked, and dated from five to eighteen months. Two cases were in the initial stage, and characterised by mental exaltation. The blood pressure was measured several times daily in each case with Riva-Rocci's instrument. In every case a febrile reaction was noted. A local reaction was present in six, absent in two. In four, at the end of forty days an improvement was noted in the general condition, including increase of weight, and marked improvement in the mental symptoms. The improvement was persistent in only one case, who was discharged three months after admission as fit to resume his work. The blood pressure as a rule showed a more or less marked depression. In one case subacute myocardial insufficiency occurred, in another fall of blood pressure was accompanied by symptoms of congestion, and in a third after an unexpected improvement, death took place in a congestive attack. Wassermann's reaction did not show any appreciable modifications during the treatment even in the patient who was discharged recovered.

J. D. ROLLESTON.

DEMENTIA PARALYTICA. W. W. RICHARDSON, *N.Y. Med. Journ.*, (491) **June 22, 1912, p. 1313.**

FOUR cases are here reported; two of the so-called circular type, one exhibiting the catatonic symptom complex, and one case of cerebral syphilis showing catatonic symptoms.

A. NINIAN BRUCE.

TREATMENT.

THE TREATMENT OF OPIUM POISONING BY THE FARADIC (492) **CURRENT.** FREDERICK TAYLOR, *Proc. Roy. Soc. Med.*, Vol. v., No. 7, May 1912, (Therap. Sect.), p. 165.

THE treatment of opium poisoning may be divided into the following parts: the evacuation of the stomach; the use of antidotes; the prevention of a fatal somnolence or coma; and the maintenance of adequate respiration. The evacuation of the stomach is obviously desirable, and should be carried out even if the poisoning be from subcutaneous injection of morphia, as it is eliminated by the gastric mucous membrane and may be reabsorbed. Atropine and dilute permanganate of potassium are the best antidotes, but are often very slow in manifesting their action. The chief clinical effect of an overdose of opium is somnolence increasing to coma which may terminate in death from respiratory paralysis; the treatment, therefore, is to prevent the coma. This usually consists in "rousing" the patient by walking him about, dashing cold water over the face, &c. The author considers it is not expedient to walk a patient about who is poisoned by opium, because if the dose is at all large there will inevitably come a time when he will be unable to stand, even though supported by two friends, and up to this stage he is not really in danger from failure of respiration. Other stimuli such as shaking the patient, &c., are not very efficient, and can be replaced by the faradic current applied indiscriminately to all the muscles of the trunk or limbs. This may act by *rousing* the patient, by stimulating the respiratory functions or by hastening the elimination of the poison. It should be applied by small moist electrodes, and strong enough to cause muscular contractions, not merely to stimulate the skin. Two severe cases are reported when the stimulations were continued for forty and fifty minutes respectively without producing any exhaustion and contributing apparently directly to the disappearance of the somnolence, and in the second case to the restoration of the respiratory functions, although artificial respiration was also used. The paper was discussed by the section. A. NINIAN BRUCE.

Reviews

INFANTILE PARALYSIS IN MASSACHUSETTS DURING 1910. (493) Boston: Wright and Potter, 1912.

THIS is a reprinted series of articles communicated by various authors to the State Board of Health during 1911. Some of these have already been abstracted in this *Review*. Many interesting facts regarding the epidemiology of the disease are tabulated herein, although it cannot be said that anything very strikingly new regarding the disease has been elicited. There are several papers dealing with possible modes of spread of the virus, others with experimental attempts to transmit the disease to monkeys by innoculation with human secretion, and with the protective value (or lack of it) of certain specific sera against the virus.

J. H. HARVEY PIRIE.

ELEKTROPHYSIOLOGIE MENSCHLICHER MUSKELN. Von Dr med. H. PIPER. (494) Mit 65 Abbildungen; pp. 163. Pr. M. 8. Berlin, Julius Springer, 1912.

THIS book gives a good account of the method of studying the action of human muscles by recording the electrical changes accompanying activity.

The principles of construction and use of Einthoven's string galvanometer, which has been employed by the author in his investigations, are clearly explained.

In studying the electrophysiology of human muscle it is necessary to place non-polarisable electrodes on two areas of skin over the muscle or group of muscles selected. The changes accompanying either voluntary contraction or contraction produced by an induction shock applied to the nerve can then be recorded photographically on a moving plate.

From the parallel arrangement of the fibres the flexor muscles of the forearm are most suitable for rendering a typical diphasic variation when the nerve is stimulated by an induction shock, and for this purpose the leading off electrodes must both be placed either below or above the zone in which the majority of the motor end plates lie, that is to say the nervous equator of the muscle. From the equator waves of contraction pass to both ends of the

muscle, and if one electrode is placed above and the other below this zone a complicated form of curve is obtained, due to interference between the upward wave of electrical change and the downward.

From the form of the curves the author comes to the conclusion that there are two equators differing in position and arrangement, one for the upward and the other for the downward wave, and that the two waves of contraction traverse different muscle fibres.

The author discusses the various investigations, including his own, which have been directed to the determination of the rate of nerve transmission. In human nerve the impulse passes at at a rate of about 123 metres per second.

The results of Hoffmann in regard to rate of transmission through the spinal cord in the case of the knee jerk and Achilles jerk are quoted by the author. From the measurements of this observer it would appear that 9 thousandths of a second represent the synapse time of the knee jerk in man.

It must be pointed out that this is not in accordance with the results of Jolly's investigation in animals, where the synapse time is found to be shorter, from 2 to 3 thousandths, nor does it agree with Snyder's conclusion on theoretical grounds that the synapse time in man is probably about 1·92 thousandths of a second.

When a muscle contracts voluntarily the result is never a simple twitch such as is produced by an induction shock, but an oscillatory process always takes place in the active muscle. The various methods that have been used in the attempt to measure the rhythm are detailed, the determination of the sound given by the muscle, direct mechanical registration of the changes in the muscle when the brain is stimulated as in the researches of Horsley and Schäfer, and the employment of the telephone and capillary electrometer.

When the electrical changes from the muscles of the forearm in voluntary contraction are recorded by the string galvanometer, the curve presents a series of diphasic variations at a rate of about 50 per second. This rhythm is more clearly seen in some records than in others, but even where it seems absent and the impression is obtained of an inconstant number of waves varying in rate and amplitude, a careful examination reveals the presence of the 50 rhythm. Each wave has a duration of $\frac{1}{50}$ second in a typical curve.

The author finds, in opposition to Garten's view, that stimulation of the nerve by induction shocks of high frequency yields the rhythm of 50 per second.

Each of the single waves on the curve of voluntary contraction is equivalent to a diphasic variation caused by a single induction

shock, and is produced by what may be termed a volley of impulses arriving at the end plates of the nervous equator.

The author concludes that fifty volleys of impulses per second are sent out from the central nervous system to the muscle in voluntary contraction, and that one wave of contraction at a time passes from end to end of each muscle fibre. Only when a wave has been extinguished at the further end of the fibre does a succeeding wave appear.

When the force of contraction is varied, only the amplitude not the rate of the electrical variation is altered.

The typical rhythm of contraction is not dependent on any inherent property of the muscle, but is directly determined by the rate of innervation.

When the contraction of short muscles such as those of the thumb is contrasted with that of long muscles, it is found that the pauses between successive waves are more in evidence in the former. The rate of innervation is similar in both. It is possible that the rate of transmission of the muscle wave may vary according to the length of the muscle fibres.

Some interesting observations by Hoffmann, not yet published, on the electrical changes in the eye muscles are referred to. It appears that in some cases continuous oscillations of small amplitude may be recorded for hours at a time from these muscles. This would indicate that they show a tonic activity which the author has not observed in other striped muscles. It may be pointed out here, however, that electrical evidence of tone in skeletal muscles has been described by several observers, for example, when the electrocardiagram is being recorded.

Fatigue has an influence on the rhythm of the electrical changes in voluntary contraction. The author publishes curves from the muscles of the forearm which have been fatigued in compressing a dynamometer, and the rate of the deflections is seen to have sunk to 35 or 25 per second. They may regain for short intervals the usual rate of 50 per second. It is the frequency of the innervation impulses which is diminished by fatigue.

The rate is also influenced by temperature. Both in cold-blooded and warm-blooded animals it is a function of the temperature. The rhythm obtained in strychnine tetanus differs from that seen in natural innervation, and conclusions drawn from the former cannot be directly applied to the latter.

While some of the author's conceptions would seem to require further experimental support, he has demonstrated the value of electrophysiological observations on human muscle and nerve by means of the delicate galvanometers now at our disposal.

W. A. JOLLY (Cape Town).

PSYCHOTHÉRAPIE. By ANDRÉ-THOMAS, 1912. Baillière, Paris, (495) 12 fr.

THIS work, which comprises 519 pages of small print, is one of the twenty-eight volumes of the Gilbert-Carnot *Bibliothèque de Thérapeutique.* The first part deals with the methods of psychotherapy, and is divided into three chapters, on suggestion, persuasion, and isolation respectively. The second part, entitled, "Treatment of Diseases by Psychotherapy," has three sections, on the psychoneuroses, mental disorders, and organic diseases of the nervous system respectively; the two last-named deal with the education of imbeciles and the re-education of patients suffering from aphasia, tabes, and chorea, matters that are not generally considered to come under the rubric of psychotherapy.

A book on psychotherapy is usually one of two kinds. It either purports to give a general review of the different methods and the applicability of them, or, and more often, it is an exposition and frank advocacy of the particular method in which the author is most an adept; the latter type reminds us of the days when psychotherapy used to be a purely personal art, lacking in scientific foundation. The distinction is of some importance, for evidently a book will have to be judged by a different criterion in the two cases. There is every indication that the present volume is intended to be one of the first-mentioned type, so that it must be judged as such. Not only does the author's impersonal tone indicate this—in fact the book loses much of its value to the student through the numerous occasions on which contradictory passages are quoted from various authors, and no personal criticism added,—but Professor Dejerine, in an introduction to the book, explicitly states as much: "One will find in it a critical and detailed study of the different opinions that have been offered to explain the genesis of neuropathic states"; "the subject of psychotherapy is treated in great detail, and in a very complete manner by the author." From this point of view the book must be pronounced a considerable disappointment. It is an excellent and clearly-written presentation of a certain stage in knowledge, one practically confined to the subject of suggestion and persuasion, and in accord with the views held twenty years ago at a time before any serious advance had been made in the understanding of the principles of psychotherapy. But of the rich work done since this time, of Janet's dissection and replacement procedures, of Prince's re-educational method, of Jung's association work, of Vogt's casual analysis, &c., there is hardly a word. On Freud's psycho-analysis, which has so completely revolutionised psychotherapy, there are two and a half pages, a concise and accurate description, it is true, but one in the highest degree incomplete.

As is customary in French books, the extensive investigations that have appeared in German are almost totally neglected.

We note in passing that the author adopts Kraepalin's conception of manic-depressive insanity, that he avoids the misleading term "psychasthenia," and that he makes a laudable attempt to reduce the boundaries of neurasthenia to their original limits.

In conclusion, the book is in no sense what it purports to be, an adequate review of the subject of psychotherapy in 1912. Along with many other books, it may serve some function in a more modest sphere as a description of the simpler and primitive psychotherapeutic methods, particularly suggestion and persuasion, evidently the only ones with which the author has had experience. Even here the reader will look in vain for anything more than description, there being, for instance, no reference to the illuminating work of Ferenczi on the nature and meaning of the mental processes underlying suggestion. ERNEST JONES.

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Review
of
Neurology and Psychiatry

Original Articles

SUBACUTE AND ACUTE INFLAMMATORY REACTIONS PRODUCED IN THE SPINAL CORD BY INFECTION OF ITS LYMPH STREAM.[1]

By DAVID ORR, M.D., Prestwich; and R. G. ROWS, M.D., Lancaster.

(Plates 25-38.)

THIS paper deals with the inflammatory phenomena induced in the spinal cord by infecting the ascending lymph stream of the spinal nerves connected with it, and is a continuation of a research commenced in 1903. Briefly, the principle of our research is that the lymph stream in peripheral nerves is an ascending one, and that in it toxins and organisms are carried towards the central nervous system, and there produce very definite changes. At first our observations were confined to clinical cases such as infective brachial neuritis and suppurating bed-sores in the buttock and elsewhere, and we were able to show that the toxins from these ascended along the nerves and induced degeneration in that part of the spinal cord connected with the focus of infection.

As a result of these observations we undertook a series of experiments on animals which confirmed our previous conclusions, and in our last paper[2] we gave in detail the histological evidence

[1] Towards this research the British Medical Association has assisted by a grant of money.

[2] The histological evidence that toxins reach the spinal cord *via* the spinal roots; with special reference to plasma-cells. Orr and Rows, *Review of Neurology and Psychiatry*, No. 12, 1910.

which went to show that the path of the toxic lymph could be traced, by the induced inflammatory reaction, in the sciatic nerve to the posterior root ganglia and upwards for a considerable distance along the spinal roots. In that series of experiments we placed a celloidin capsule containing a broth culture of an organism in contact with the sciatic nerve. The experiments were carried out on rabbits and dogs and the organisms employed were the *Staphylococcus pyogenes aureus*, the *Bacillus pyocyaneus*, the *Bacillus coli*, the *Bacillus botulinus*, and diphtheroid bacilli obtained from cases of general paralysis of the insane.

Although in these experiments we found degeneration of the myelin sheath of the nerve fibres in the cord, inflammatory reaction was either absent or extremely slight, and our later experiments were undertaken with the aim of producing a myelitis. The capsule containing the organisms was placed, therefore, in a position much nearer the spinal cord in order to diminish the distance along which the infection had to be conveyed. The organism employed was the *Staphylococcus pyogenes aureus* and the spinal cord was attacked in two situations. In one series of experiments the spinal cord was laid bare at the level of the lumbo-sacral enlargement and a capsule was sutured against the dura mater, in another series the muscles were separated from the vertebrae in the dorsal portion of the spinal column, and a capsule was placed close against an intervertebral foramen. All the experiments gave positive results—results, however, which varied considerably in degree, because in some cases the capsule burst and a growth of organisms took place in the tissues and spread to the dura mater. In the cases in which no organisms were present outside the capsule the inflammatory phenomena within the contents of the spinal canal were, for the most part, of a subacute or chronic nature; but where organisms were present the changes were acute. This corresponds with the results obtained in our experiments on the sciatic nerve.

The inflammatory phenomena found in these experiments we have divided into two classes, those in which no organisms were present in the spinal canal, and those in which organisms could be traced to the dura mater. Many details of cell morphology will not be entered into because this would be an unnecessary repetition of much of our last paper. We will adduce ample evidence, however, of the induction of chronic and acute

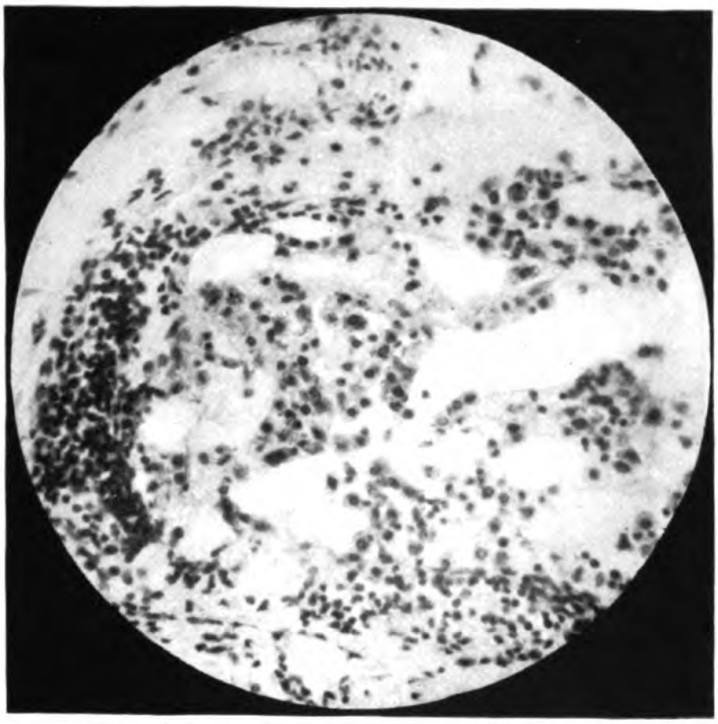

PHOTO 1.—Note the large number of polyblasts scattered throughout the meshes of the epidural tissue: toluidin blue.

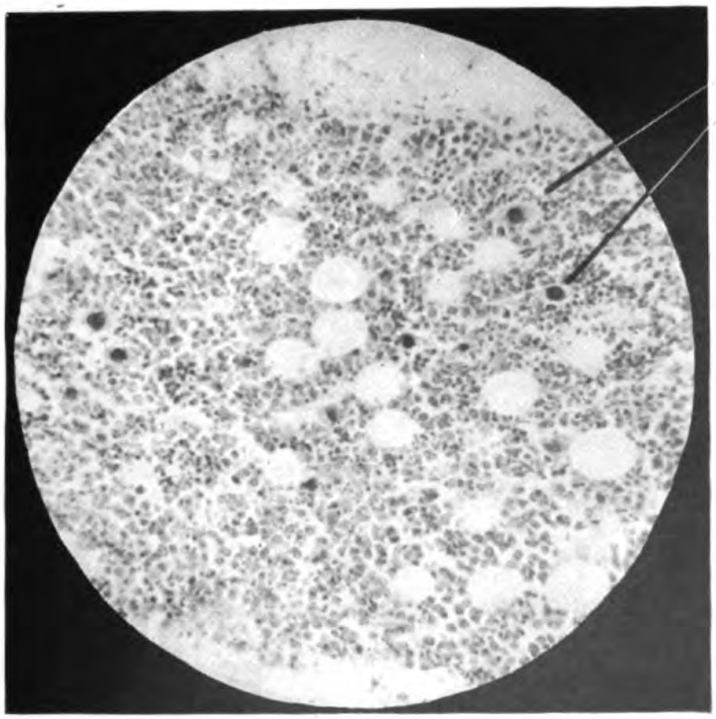

PHOTO 2.—Shows numerous giant cells lying in the epidural tissue, surrounded by polyblasts, lymphocytes, plasma-cells, reticulate cells, and red blood corpuscles: toluidin blue. 1. Giant cells.

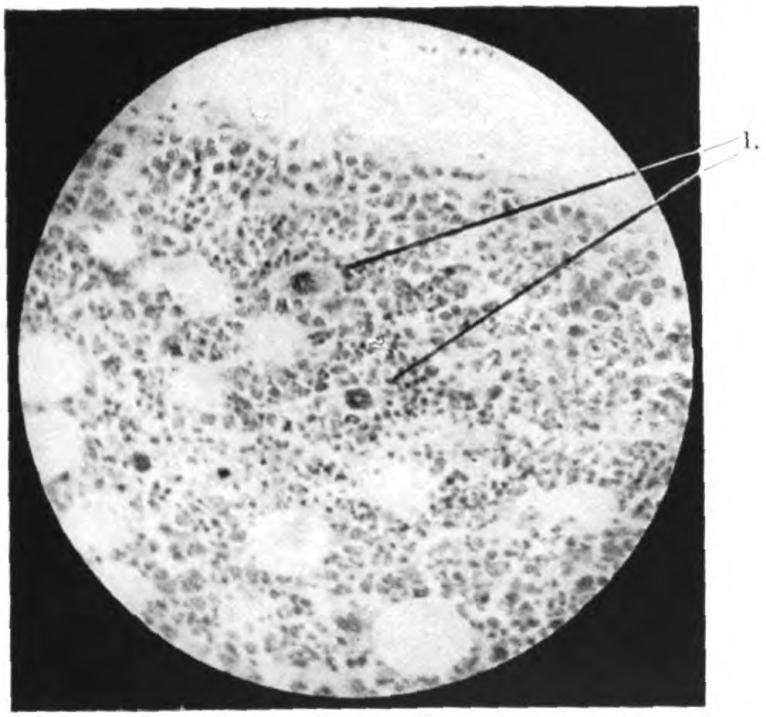

PHOTO 3.—A higher magnification of Photo 2. 1. Giant cells.

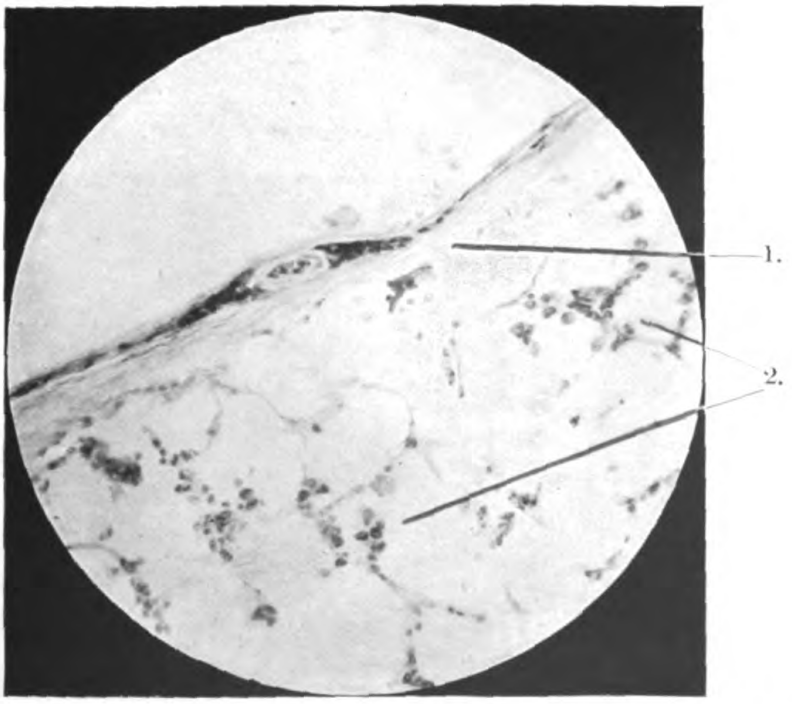

PHOTO 4.—Observe the collection of plasma-cells around the vein in the dura; also the proliferation of the cells lining the trabeculæ of the epidural tissue: toluidin blue. 1. Dura; 2. Epidural tissue.

myelitic conditions by infection of the ascending lymph system at a point outside the spinal cord, and we hope to show that a study of the development and distribution of the inflammatory phenomena throws considerable light upon the mechanism of production of some acute and chronic cord lesions in man. In our last paper we gave it as our opinion that general paralysis of the insane was a chronic inflammatory disease of lymphogenous origin. This opinion was based on the close similarity between the vascular lesions in the brain of general paralytics and those found in our experiments as a result of toxic infection of the lymph system of the sciatic nerve and spinal roots. We have confirmed this opinion by observation on the spinal cord, and are now more than ever inclined to the view that the striking predominance of adventitial proliferation and infiltration found in the cerebral vessels of general paralytics is only to be explained by toxi-infection of the cerebro-spinal lymph. There is no evidence in favour of the view that a general blood intoxication causes this disease, for the endothelium of the vessels may be unaffected when the adventitial spaces are filled with the products of proliferation. Nor does the theory of premature decay of the neuron help us, as the mechanism by which this comes about remains to be explained. And, moreover, it is remarkable how well preserved the nerve cells may appear when a periarteritis and neuroglia proliferation is well established.

The results of our experiments, in addition to their application in the elucidation of the pathogenesis of chronic lesions of the central nervous system, throw a great deal of light on the mode of origin of acute myelitis. Since the publication of the work of Wickman on Poliomyelitis there has remained no doubt that this disease is a disseminated myelitis, that the old theory of selective action of toxin for the nerve cells must be discarded, and that infection of the blood stream can no longer be held accountable for the morbid picture. Wickman's view is that the disease is lymphogenous in origin and we agree with him, but we will return to this point after describing what we have found to take place by experiment.

As mentioned above there are many details into which we will not enter. We wish to confine the scope of this communication to presenting evidence to show that infection passing into the cord by the lymph system takes a definite course, that the

structures of the cord and its spinal nerves react to infection by this path in a definite manner varying with the potency of the noxious agent, and that the inflammation can be propagated by the toxic lymph to parts distant from the focus of greatest intensity.

The rabbits experimented on lived for a period varying from three days to three weeks. The spinal cords were fixed in absolute alcohol for the toluidin blue and pyronin-methyl-green stains, and in Weigert's chrome-alum-copper solution for the Alzheimer and Mallory stains. The tissues were cut in transverse and longitudinal section.

In describing the lesions met with we will commence with the reaction in the capsule of the posterior root ganglia and the dura mater with which it is continuous; then, passing inwards, we will take up the inflammation in the spinal roots, the pia arachnoid, the white matter and the grey matter of the spinal cord. Longitudinal sections proved especially useful in tracing the reaction from without inwards, because it was possible in the same section to compare the degree of intensity of the inflammatory process between one part and another in unbroken continuity from the ganglion to the centre of the spinal cord. It will be seen that the reaction diminished from without inwards, and that the dura mater and perineurium, with their covering of highly vascular loose areolar tissue, form a most efficient protection to the spinal cord and neutralise to a great extent the effects of infection.

Series I.

It will be unnecessary to describe separately the reaction in the capsule of the ganglion and the dura mater, seeing that they are continuous with each other, and the inflammatory changes were exactly the same in both situations. These could be followed along the areolar tissue lying on the surface of the ganglion and thence, without interruption, on to the outer aspect of the dura mater. The spaces of the epidural tissue (photos 1 and 5) were filled with the products of inflammatory reaction; the vessels were widely dilated, and there were many extravasated red blood corpuscles. The greater proportion of the exudation consisted in

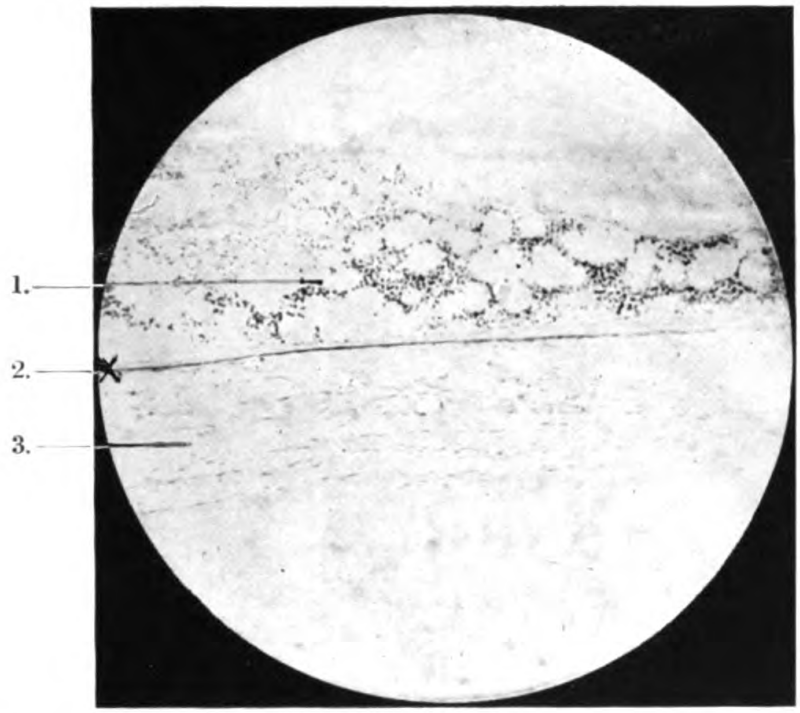

PHOTO 5.—1. The epidural tissue filled with reaction cells; 2. The dura mater; 3. Pia-arachnoid: toluidin blue.

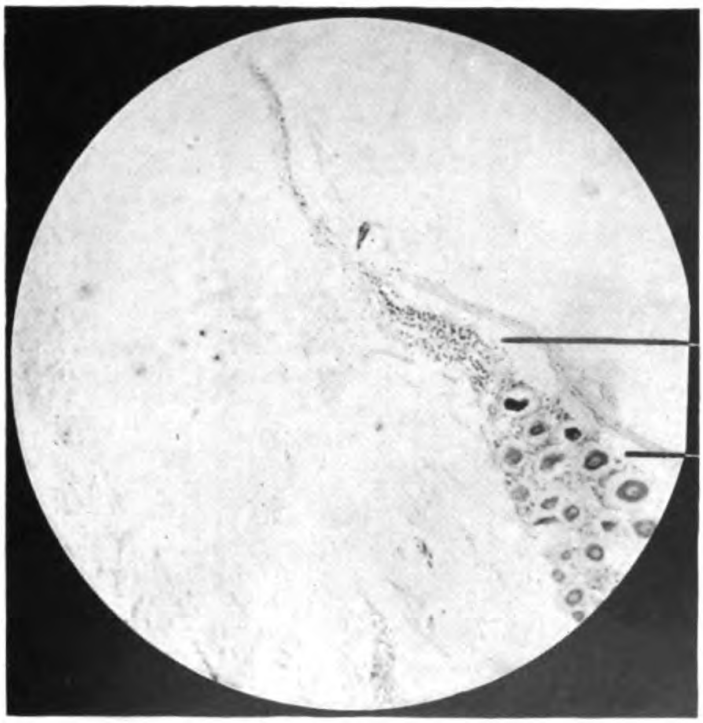

PHOTO 6.—The perineurium between the posterior root ganglion and the cord showing a well-marked inflammatory reaction. 1. Cells of posterior root ganglion; 2. Perineurium filled with plasma-cells: toluidin blue.

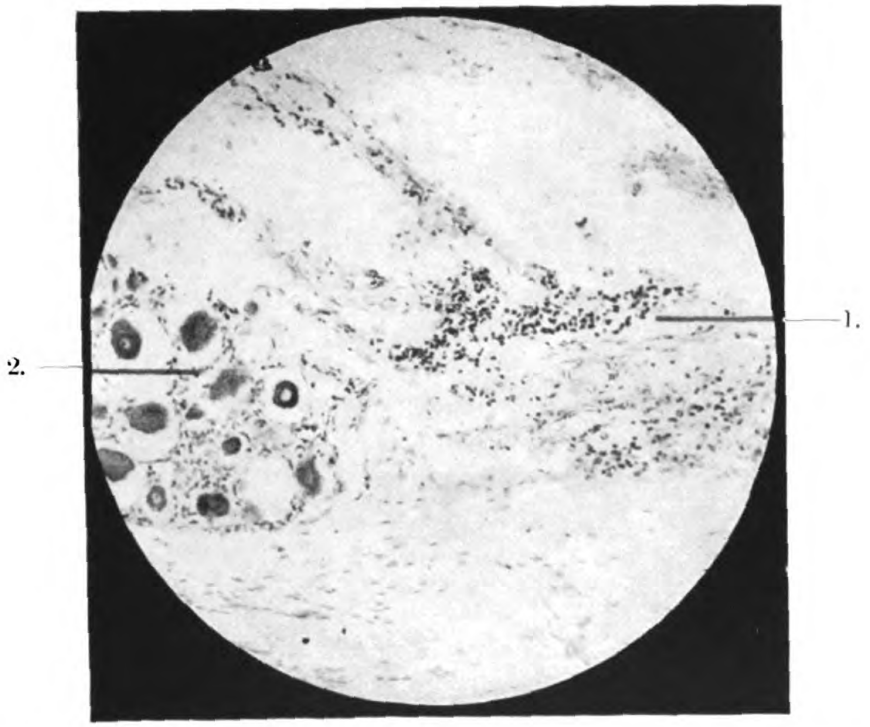

PHOTO 7.—1. The collection of polyblasts and plasma cells at the proximal pole of the root ganglion; 2. Root ganglion cells: toluidin blue.

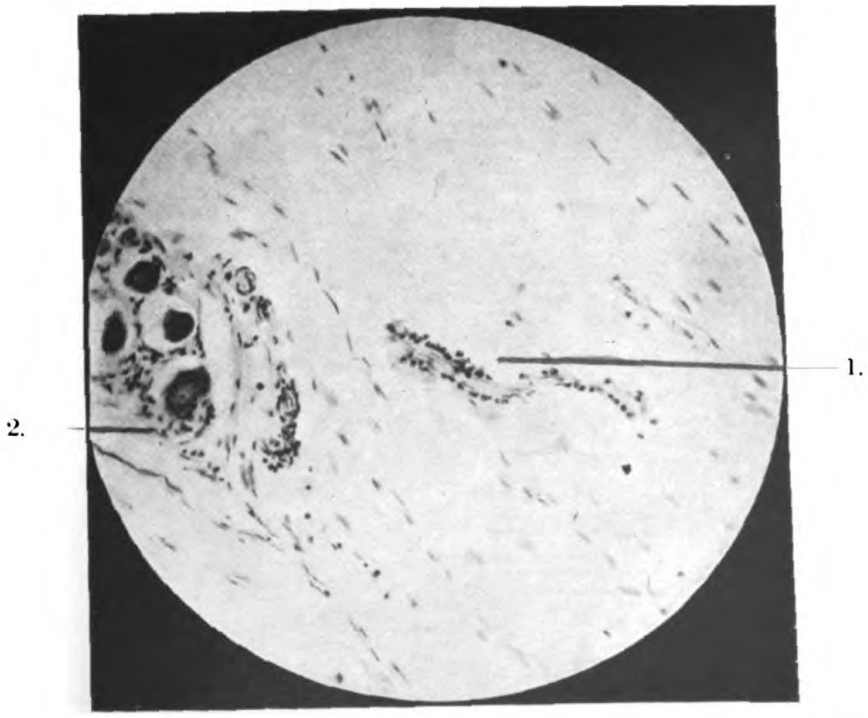

PHOTO 8.—1. Plasma-cell formation in the adventitia of a venule on the proximal side of the root ganglion; 2. Root ganglion cells: toluidin blue.

round mononucleated cells, and amongst these were scattered the residua of degenerated polymorphonuclear leucocytes. The cell-body of many of these could no longer be distinguished, and in others it was recognisable only as a faintly stained shred; the nucleus exhibited various degrees of distortion. The number and arrangement of the mononucleated cells varied from point to point. Sometimes they were accumulated around the trabeculæ of the areolar tissue; at other times large closely packed masses had collected. Their cell-body stained deeply with toluidin blue and intensely red with pyronin-methyl-green. It was rounded in the majority, oval in some, and constricted in others; in practically all of them the contour was irregular as if disintegration had supervened. The peripheral portion of the cell-body stained more deeply than the centre, an appearance best brought out by the pyronin-methyl-green stain. Vacuolation was a constant feature, and where the contour of the cell was very irregular, several small vacuoles were present. Many of these cells showed advanced phases of degeneration in which the protoplasmic body was reduced to shreds and the nucleus pale and distorted.

The appearance of the nucleus varied very considerably. In some areas it was small, stained well, and situated sometimes in the centre and sometimes at the periphery of the cell. The arrangement of the chromatin was not at all constant; in some nuclei it was placed round the nuclear membrane, in others it was scattered throughout. Many of these nuclei were degenerated, stained diffusely, irregular in outline, and in some cases partially extruded from the cell. Where the inflammatory reaction was most intense and the hæmorrhage extensive, the nucleus of these mononuclear cells was larger and clearer. A large number of cells resembling small lymphocytes were scattered throughout these masses. Körnchenzellen or compound granular corpuscles, showing the typical fenestration of the cell-body and the small dark nucleus at the periphery, were present, and many transitional forms between them and the mononuclear cells described above could be seen. Giant cells (photos 2 and 3) containing several nuclei and with a large pale body were found in the exudation in considerable numbers. Mitotic figures were present in some of the cells of the inflammatory reaction.

Reference has been made already to the dilatation of the vessels and to the extravasation of blood from ruptured vessels.

The adventitia of the veins in the epidural tissue was infiltrated by plasma-cells, which, stained red by the pyronin-methyl-green method, could be recognised in long chains lying in the vessel wall. Their appearance was typical of this type of cell though they had not all reached the stage of full development. Here and there around the veins were small collections of cells resembling small lymphocytes. Where the inflammatory exudation was very slight, a view of the reaction in the cells of the areolar tissue could be obtained. Small round nuclei and plasma-cells lay along the trabeculæ. Many of the nuclei of the areolar tissue cells were pale and swollen, and at the points where the fibrous strands joined one another there were seen cells whose body was rounded and contained a small halo on one side of the nucleus.

In the substance of the dura mater and the capsule of the ganglia distinct evidence of toxic invasion was shown by the presence of numerous plasma-cells in the adventitia of the veins and in their neighbourhood, but no polymorphonuclear or mononuclear leucocytes were present. The nuclei and cell-body of these plasma-cells were narrow and elongated, and the latter stained deeply with the toluidin blue and pyronin-methyl-green methods. Many of the dural nuclei had become oval in shape and had developed a small mass of protoplasm at either extremity, and a further stage in plasma-cell formation was shown by the nucleus becoming more rounded, and a halo appearing on one side of it. Many fully developed plasma-cells were arranged in parallel rows amongst the layers of the dura mater and of the capsule of the posterior root ganglia (photo 4).

A definite reaction had occurred in the posterior root ganglia, and, as in the case of the dura mater and the capsule of the ganglia, it was of a less acute type. Many plasma-cells, which had reached an adult stage of development, were present in the substance of the ganglia, either lying free or collected into small groups. Their relation to the adventitia of the veins and capillaries was frequently obvious, while the presence of isolated examples amongst the proliferated elements of the capsule surrounding the nerve cells suggested that under certain circumstances they might originate from those cells.

The signs of inflammation were much more in evidence at the proximal pole of the ganglion than in its body (photo 7). In

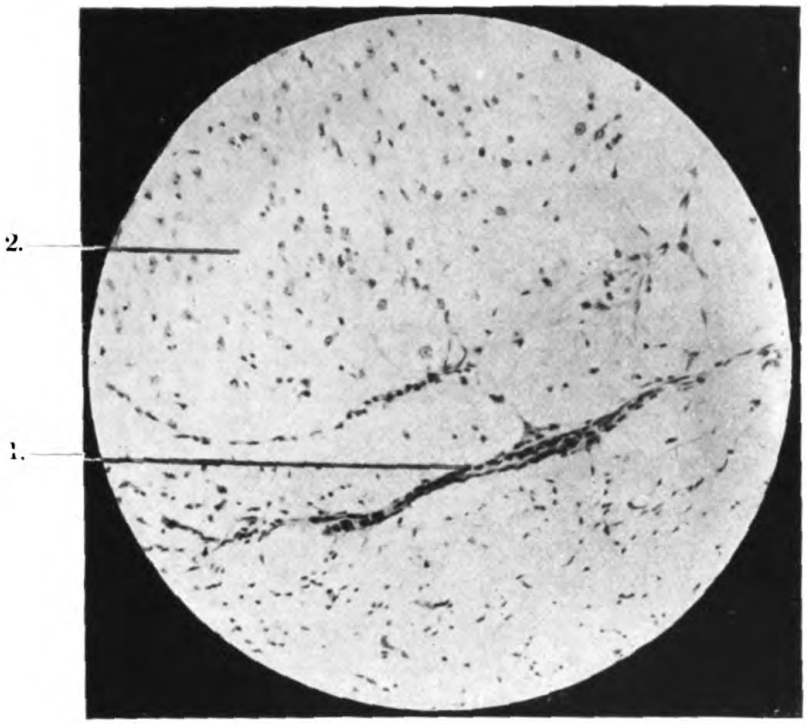

PHOTO 9.—1. Plasma-cell formation in the perineurium of posterior root close to the cord; 2. Spinal cord, substantia gelatinosa Rolandi: toluidin blue.

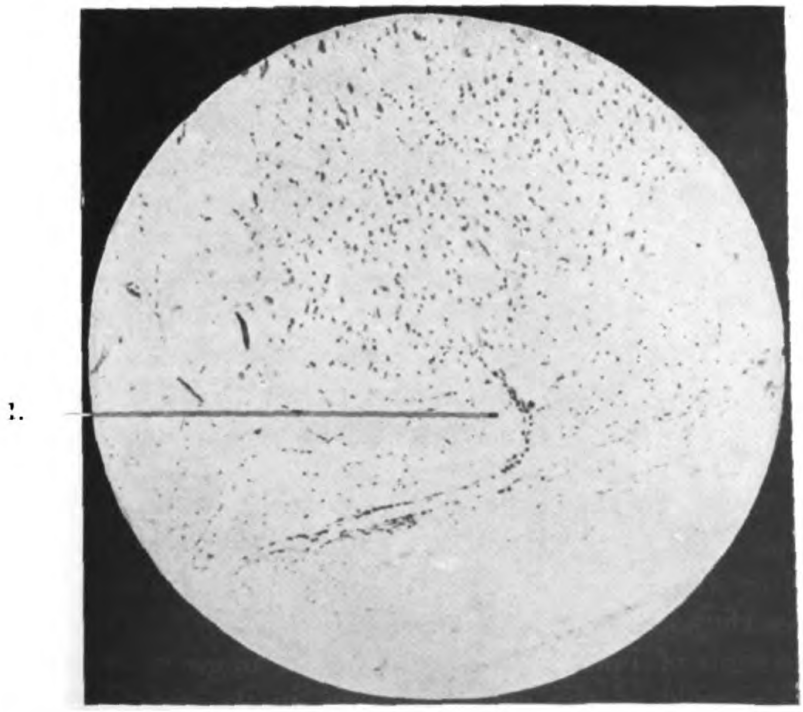

PHOTO 10.—1. To show plasma-cell formation in the adventitia of a vessel dipping into the substantia gelatinosa Rolandi: toluidin blue.

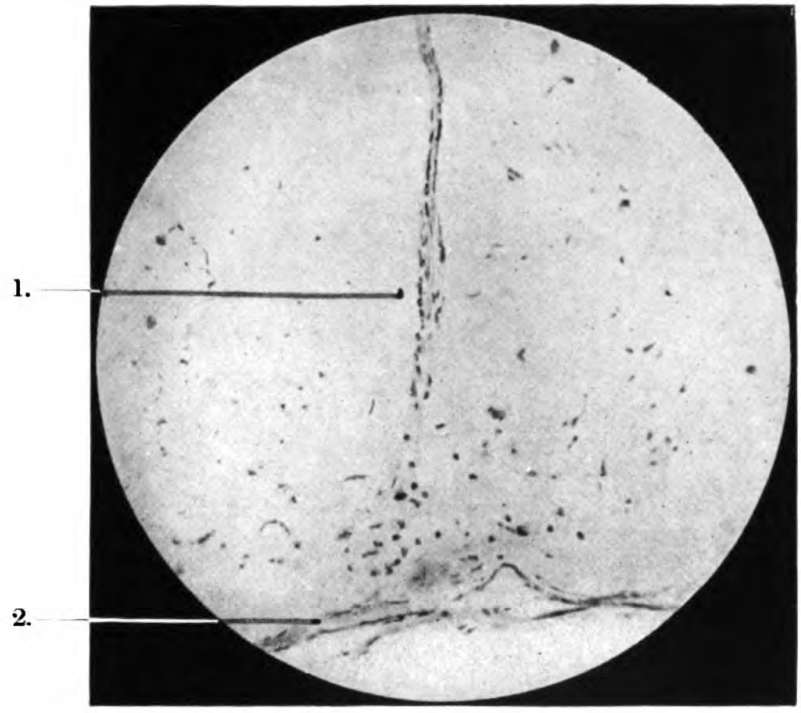

PHOTO 11.—1. Plasma-cells in the adventitia of a vessel in the postero-median septum of the cord; 2. Pia-arachnoid covering the posterior columns: Pappenheim stain.

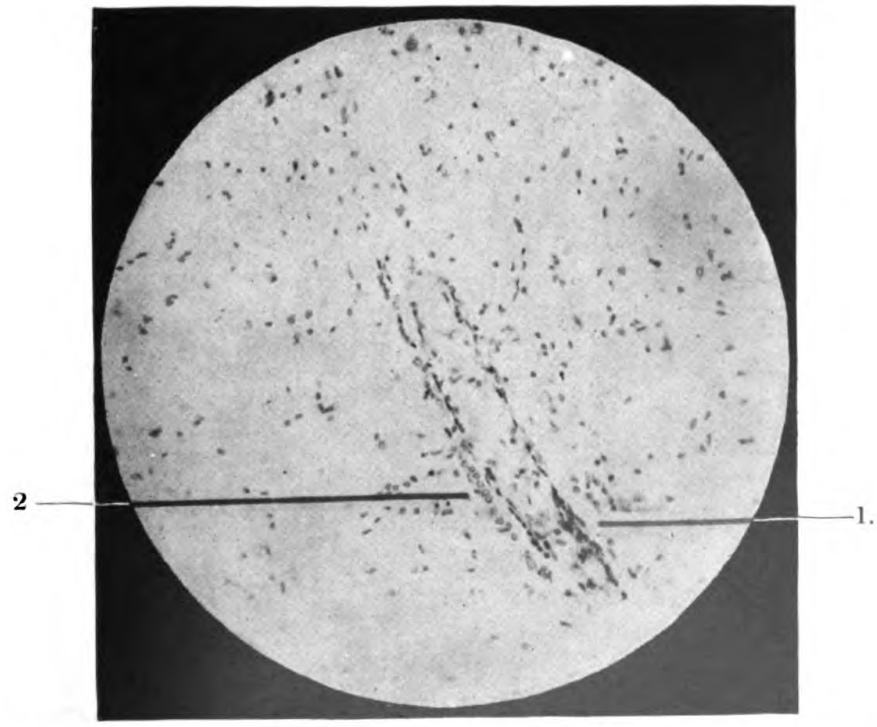

PHOTO 12.—To show a vessel in the white matter of the cord. 1. Proliferation of the adventitial cells; 2. Proliferated neuroglia cells around the vessel: toluidin blue.

every ganglion a large group of plasma-cells lay at the point where the two spinal roots diverge from one another. The group formed a striking feature in all the sections, and all stages of the development of plasma-cells were seen; extravasated red blood corpuscles were frequently mixed with them. This local focus was found to be related to a vein. At this point and all along the anterior and posterior spinal roots inflammatory changes of varying degree were present in the adventitial sheath of the small veins and capillaries, and in the perineural sheath chains of plasma-cells were often found to extend from the proximal pole of the ganglion to the spinal cord (photos 6 and 9). Many of the adventitial nuclei had become smaller than normal, rounder and darker, and were surrounded by only a very little protoplasm. In other cells there was more protoplasm, and the nucleus was less deeply stained. Scattered amongst these were fully formed plasma-cells with a characteristic halo (photo 8).

The degree of the reaction in the pia arachnoid and cord was much less than in the ganglia and spinal roots, and from the pia mater inwards there was a progressive diminution in the intensity of the inflammatory phenomena. These differences were quite apparent with a low magnification in a longitudinal section which included all the structures between the root ganglia and the central canal. The nuclei of the cells lining the trabeculæ of the pia mater were frequently swollen and stained more deeply than normal. The adventitial cells of the veins and capillaries were greatly increased in number, were small, round, and deeply stained, and here plasma-cells in all stages of development were evident. These changes were especially well seen in the small vessels passing from the inner layer of the pia mater into the white matter of the spinal cord. In transverse sections, vessels showing these changes were observed dipping into all regions; into Lissauer's tract, into the Substantia Gelatinosa Rolandi (photo 10), into the root entry zone, and along the postero-median fissure (photo 11); they were also seen passing down the septa into the lateral region as far as the basis bundles, and through the area of the emerging anterior roots. Reaction changes were found in connection with the vessels of the grey matter also, but were trifling as compared with those of the peripheral portions of the spinal cord. The adventitial sheath of the veins and capillaries of the outer portion of the grey matter

showed proliferative changes, and was infiltrated with young plasma-cells, but in the inner portion, near the central canal, the capillaries presented a minimum of reaction. Their nuclei were rounded and stained more deeply than normal, and those of the endothelium sometimes projected into the lumen of the vessel.

The neuroglia cells, in both white and grey matter, were greatly increased in number, and their proliferation was especially evident in the neighbourhood of the venules and capillaries of the white matter (photos 12, 13, 14). By Alzheimer's method the nucleus was clear and round, or oval, the protoplasm stained light blue, was increased in quantity, and often extended into short, stumpy processes. This variety of reaction in neuroglia cells has been described by Alzheimer as being the characteristic change of these cells in acute morbid processes; they have been called by him "amœboid cells." In sections stained by toluidin blue the proliferation of the neuroglia cells around the vessels was seen to be very active, and the cells could be easily differentiated from the proliferated elements of the adventitial sheath. A longitudinal section of a vessel showed internally a healthy, or nearly healthy, endothelium; next, the adventitial sheath filled with darkly-stained nuclei and young plasma-cells, and outside these, separated by a clear space, a row of proliferated "amœboid" cells (photo 12).

The neuroglia cells in the grey matter presented the same morphological appearances as in the white matter. They were observed to form small collections in the vicinity of the nerve cells, four, five, and even ten sometimes being seen lying against a single nerve cell. Examples of their proliferation around the capillaries were frequently met with, but it was less active than around the veins of the white matter.

The great majority of nerve cells were normal. The large cornual cells were invariably intact, but some of the smaller cells showed distinct pallor with chromatolytic change. In the posterior root ganglia, apart from the shrinkage incidental to fixation in alcohol, there was little change in the appearance of the nerve cells. Some exhibited regressive alterations of a mild nature and a few were invaded by round or oval clear nuclei. The cells lining the central canal of the cord were unaffected.

Briefly, the reactive changes induced by this series of experiments may be summarised as follows:—

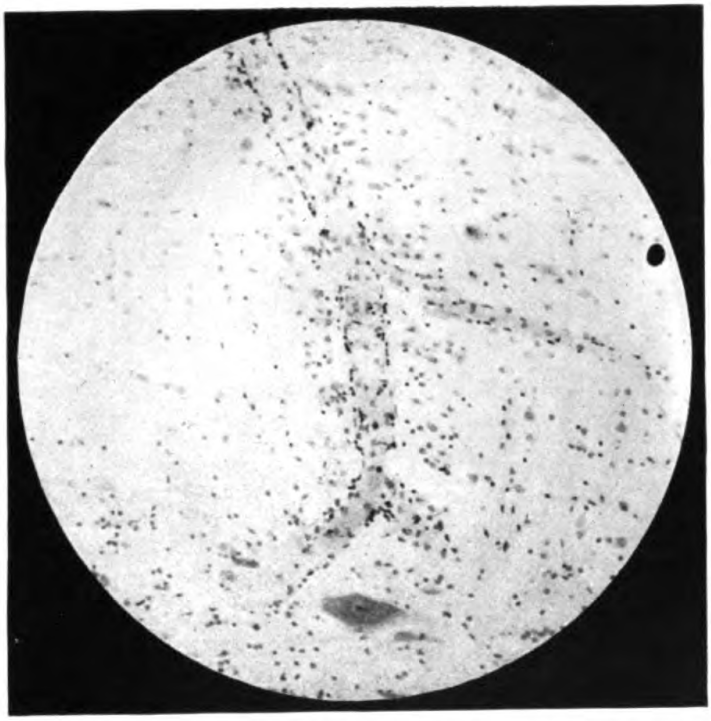

PHOTO 13.—To show a vessel passing from the white into the grey matter: low power.

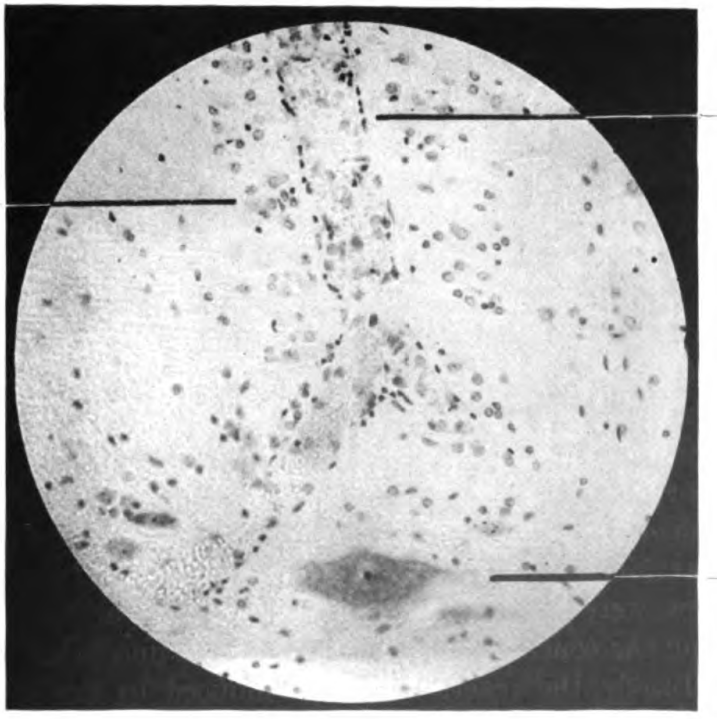

PHOTO 14.—A higher magnification of Photo 13. 1. Adventitia of venule; 2. Neuroglia—amœboid type; 3. Nerve cell; toluidin blue.

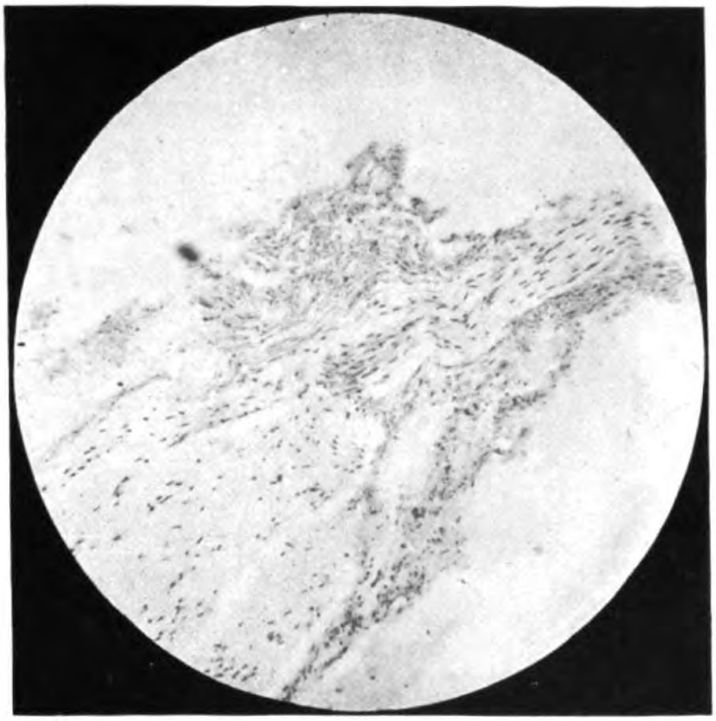

PHOTO 15.—Inflammatory reaction in the perineural sheath of intercostal nerve leading from seat of operation to spinal cord.

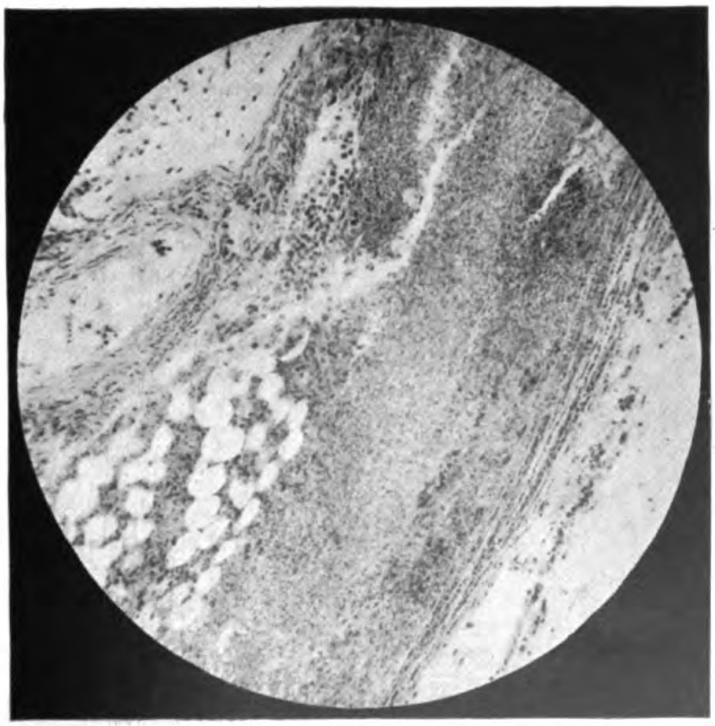

PHOTO 16.—Inflammatory reaction outside the dura mater. 1. Posterior spinal root; 2. Proliferation of cells of the adventitial sheath of a vein in the perineural sheath; 3. Lateral column of spinal cord; 4. Rows of proliferated cells of dura mater; 5. Inflammatory reaction: collection of cells and organisms.

(1) In the epidural tissue, polymorphonuclear leucocytes, plasma-cells, and cells similar to those elements which by Wickman have been called polyblasts.

(2) Plasma-cells in the dura mater and in the capsule of the posterior root ganglion; in the substance of the posterior root ganglion, where they formed a prominent group at the proximal pole; in the perineurium of the spinal roots and in the adventitial sheath of the vessels in them; in the pia mater and in the adventitial sheath of the vessels passing into the spinal cord.

(3) Proliferation of the neuroglia cells.

It is evident, then, that in these experiments upon the spinal cord the inflammatory phenomena show a striking similarity to those obtained in our earlier experiments, when the sciatic nerve was infected. The reaction nearest the capsule containing the culture of the organisms, *i.e.*, in the epidural tissue, was of a more acute type than that present in the structures inside the dura mater, and the phenomena became less marked from without inwards until the minimum was found near the central canal of the spinal cord. How close is the similarity between the results obtained from these and from our earlier experiments will be seen from a quotation taken from our last paper: "There is one important fact to which we would draw attention, and that is how plasma-cell formation becomes the most prominent indication of irritation in those regions where there is reason to believe that the toxin has been to a great extent neutralised by the reaction of the tissues." Other points in common are the proliferation of the cells of the adventitial sheath of the veins and capillaries with plasma-cell formation, and the integrity of the arterioles. This is a constant feature, and, as we have already suggested, is explicable on the generally accepted theory that the lymph regains the general circulation through the walls of the veins and capillaries, and as in these experiments the lymph contained toxins derived from a culture of pyogenic organisms, it produced irritative effects.

Series II.

In other experiments the capsule which had been placed under the erector spinæ muscle had burst and an abundant growth of micro-organisms had taken place in the surrounding tissues. From the seat of the capsule the organisms could be followed along the

intercostal nerves to the posterior root ganglia and the dura mater. The cells of the perineural sheath of the nerve were proliferating actively, and groups of organisms could be seen amongst them and the leucocytes mixed with them (photo 15). Most of the cells showed signs of degeneration—they were pale and irregular in outline.

A similar reaction could be traced along the capsule of the posterior root ganglion to the dura mater, and on the outer side of this membrane the collection of organisms was larger and the inflammatory reaction more considerable than in the nerve. Photo 16 shows on the one side the sheath of the posterior root ganglion, and on the other side the dura mater; the angle between is occupied by an intense inflammatory reaction produced by the organisms. The cells of the sheath of the ganglion and the vein in it, and also of the dura mater, have proliferated actively and lie in a series of parallel rows. They had the elongated narrow nucleus with a little protoplasm at each end, which is characteristic of the fibroblast, but some in the more superficial layers were more rounded and the cell-body was larger. Many of the cells in this region exhibited signs of degeneration, but there were groups of them better preserved which had the appearance of large lymphocytes with large pale nuclei surrounded by a considerable quantity of protoplasm.

Photo 17 shows a section of the dura mater and pia mater, On the outer side of the dura mater there were large collections of organisms lying amongst degenerating cells. The cells of the dura mater have proliferated and rows of fibroblasts were present. Inside, there was an intense inflammatory reaction amongst all the cells of the pia mater. Lying in rows the cells had an elongated oval shape with a fairly well stained nucleus, but where this parallel arrangement was lost, as at the beginning of a vein entering the spinal cord from the pia mater, the cells were more rounded. The nucleus varied in form and in staining reaction. In a few it was deeply stained, but in most it was pale. Sometimes it was nearly round, but more generally it was oval and had an indentation on one side. When it was round and deeply stained it had little protoplasm around it, and somewhat resembled a lymphocyte, but most of the cells possessed a considerable quantity of protoplasm.

It is interesting to observe what an efficient barrier against

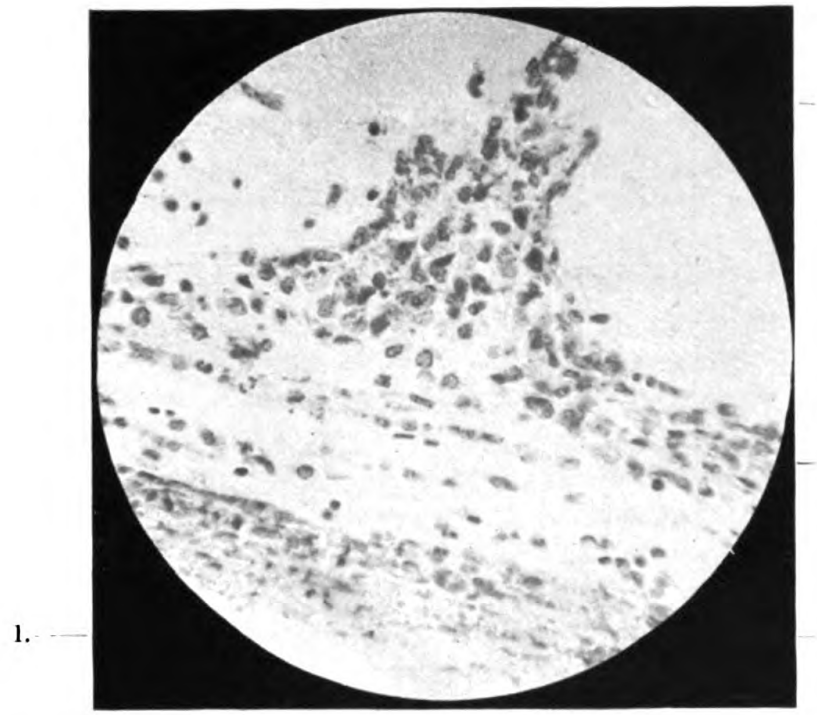

PHOTO 17.—Inflammatory reaction in dura mater and pia mater. 1. Organisms outside dura mater; 2. Proliferation of the cells of the dura mater; 3. Proliferation of the cells of the pia mater; and 4. of the wall of a vessel passing into spinal cord (polyblasts).

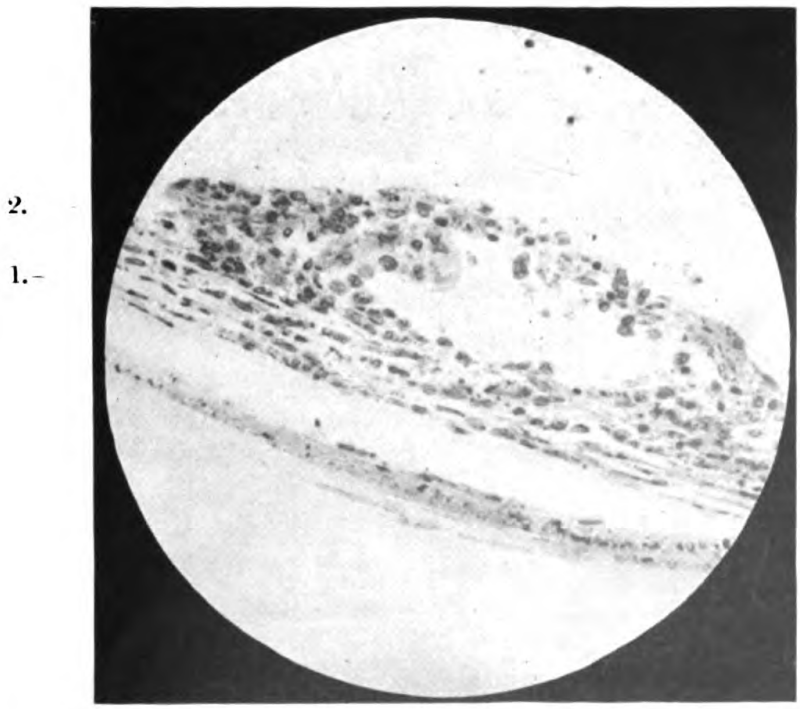

PHOTO 18.—Inflammatory reaction of pia mater and of all the elements of the wall of a vein in it. 1. Pia mater; 2. Vein. Note the proliferation of the endothelial as well as of the adventitial cells.

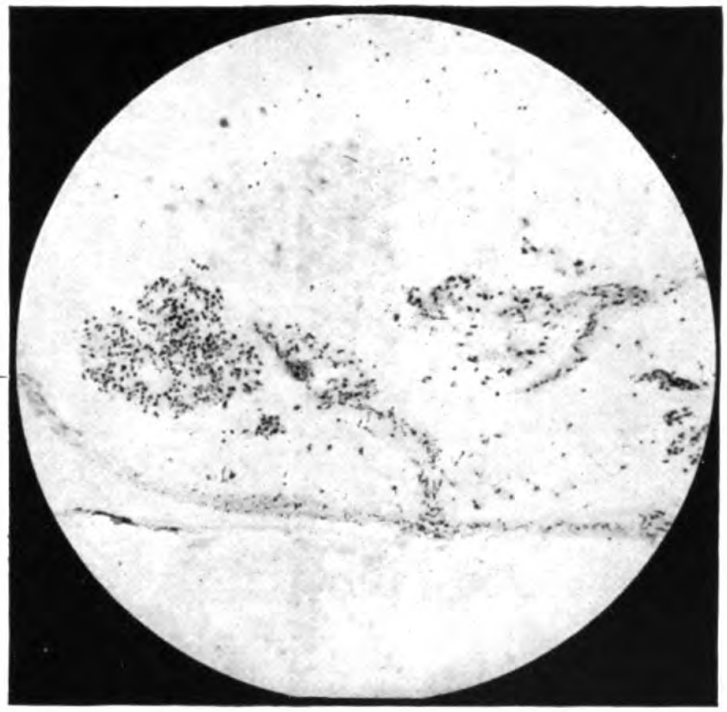

PHOTO 19.—Area in which the organisms had penetrated through the dura mater to the pia mater and passed along a vessel into the spinal cord. 1. Collection of compound granular corpuscles: Körnchenzellen.

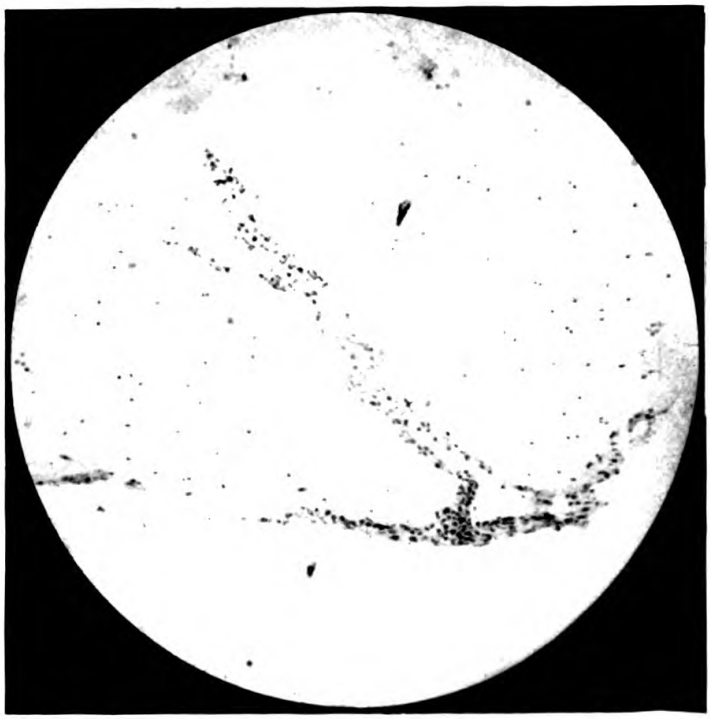

PHOTO 20.—Inflammatory reaction in the walls of a vessel passing from the pia mater into the lateral column of the spinal cord. Note the layers of cells in the walls of the vessel

the further progress of the organisms was provided by the dura mater. Even in the area where there were most organisms, opposite the seat of the operation, it was only very rarely that they had penetrated this membrane. They could be followed along the sheath of the nerve and the capsule of the posterior root ganglion and thence on to the outer surface of the dura mater. Occasionally, however, they had made their way through into the pia mater and could be followed along a few vessels into the spinal cord. Such an extension is seen in photo 19, in which the organisms were found in the sheath of a vein penetrating into the lateral columns of the cord. Near the pia mater the wall of the vessel was considerably disintegrated and only remains of cells, with organisms lying amongst them, were present; further along, the elements of the vessel wall were better preserved, and it was possible to see that an active proliferation of the endothelial and adventitial cells had taken place. Their nucleus was rounded or oval and, in many cases, had an indentation on one side; the cell-body was sometimes clear, but in many instances it contained a few deeply stained masses irregularly distributed. Frequently the nucleus was so much indented and its form so irregular that it resembled that of a polymorphonuclear leucocyte; the chromatin was distributed in a few granules so that the nucleus was not usually deeply stained.

Photo 20 shows a similar vessel from another piece of the cord, but here the reaction was less intense. All the cells of the vessel wall, endothelial and adventitial, were proliferating, in fact the wall consisted in two or three layers of these newly formed elements possessing the same characters as those described in the other vessel. Cells of this type were found by Wickman in his cases of acute poliomyelitis, and by him were called "polyblasts" (photos 17, 18, 22, 23).

In connection with some of the vessels there were considerable collections of rounded cells which offered quite a different appearance. Photo 21 shows that these cells had a nucleus of varying size and staining reaction. Most of them are rounded and deeply stained, and are situated at the side of the cell-body. The cell-body also varied. In some there was an evident reticulated structure and the spaces of the reticulum were clear, in others these spaces were occupied by some material somewhat less deeply stained than the nucleus. These cells correspond morphologically

to the epithelioid cells and Körnchenzellen of Friedmann, cells, that is, which perform the function of removing degenerated tissues. The significance of these cells will be discussed later in this paper.

But although it was a rare occurrence to find organisms spreading into the spinal cord, it is important to note that throughout the white and grey matter all the vessels exhibited marked pathological conditions. They were all much dilated and the walls of many were infiltrated with round cells (photos 23, 25). In others stasis had occurred, and fibrin filaments were present amongst the blood corpuscles (photos 24, 27). Hæmorrhages were occasionally seen. On the whole the infiltration of the walls was more marked in the white matter, while the small vessels in the grey matter were dilated and their endothelial cells were swollen. These various changes will be seen in the accompanying photographs, and a repetition of a detailed description is therefore unnecessary.

The evidences of reaction, however, were not limited to the walls of the vessels; throughout the pieces of the spinal cords examined irritative changes in the neuroglia cells also were seen (photos 24, 26, 28). These neuroglia cells were not equally affected and all degrees, from the cell just a little enlarged, with a deeply stained nucleus and a slightly increased amount of protoplasm, to the huge cells resembling the "amœboid" cells of Alzheimer, with a pale nucleus and a cell-body many times larger than that of a normal neuroglia cell, were present (photos 26, 28). This neuroglia reaction was general, but it was particularly marked amongst the cells lying close to the vessels. An extensive proliferation had occurred also amongst the capsular cells surrounding the nerve cells in the posterior root ganglia; most of the nerve cells were encircled by two or three rows of proliferated capsular cells (photo 30).

Degenerative changes of an acute type had occurred in the nerve cells. All degrees of homogeneous atrophy of the nucleus and of coagulation necrosis of the cell-body were seen (photo 29), but in the majority the chromophile elements were dissolved out. In the cells of the grey matter of the spinal cord only a few small feebly stained granules remained (photos 29, 31), and in many of the cells of the posterior root ganglia there was a collection of more deeply stained chromophile substance along a portion of the periphery of the cell, and practically none was

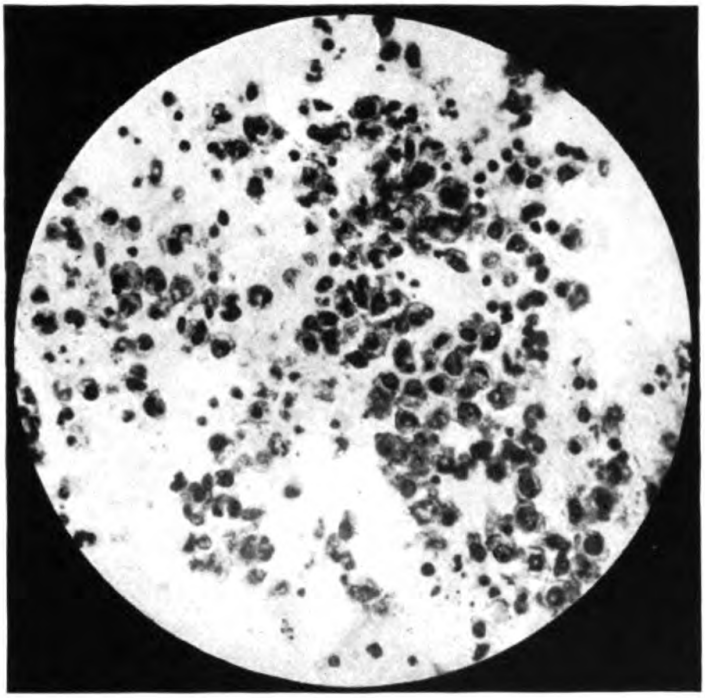

PHOTO 21.—Higher magnification of area 1. in Photo 19, showing the compound granular corpuscles: Körnchenzellen.

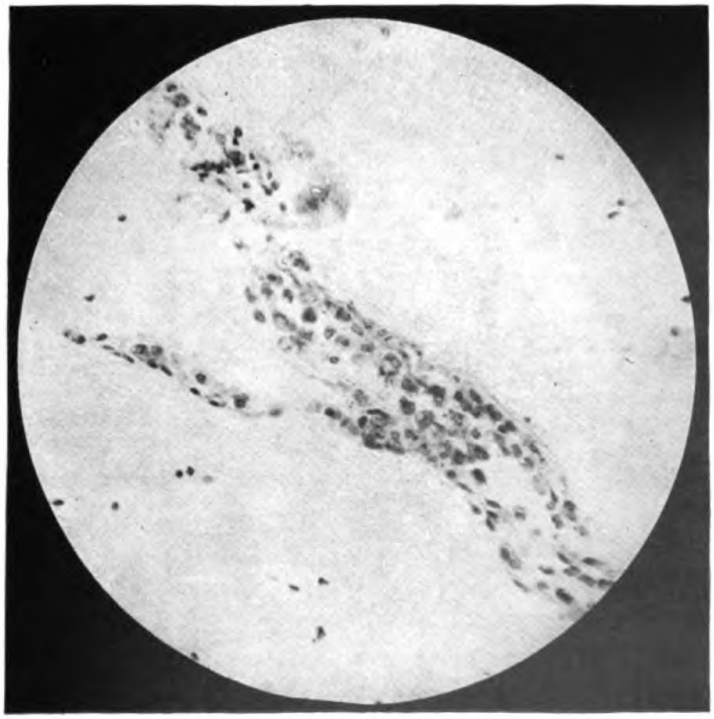

PHOTO 22.—Higher magnification of part of the vessel shown in Photo 20. Note the layers of cells in the walls of the vessel.

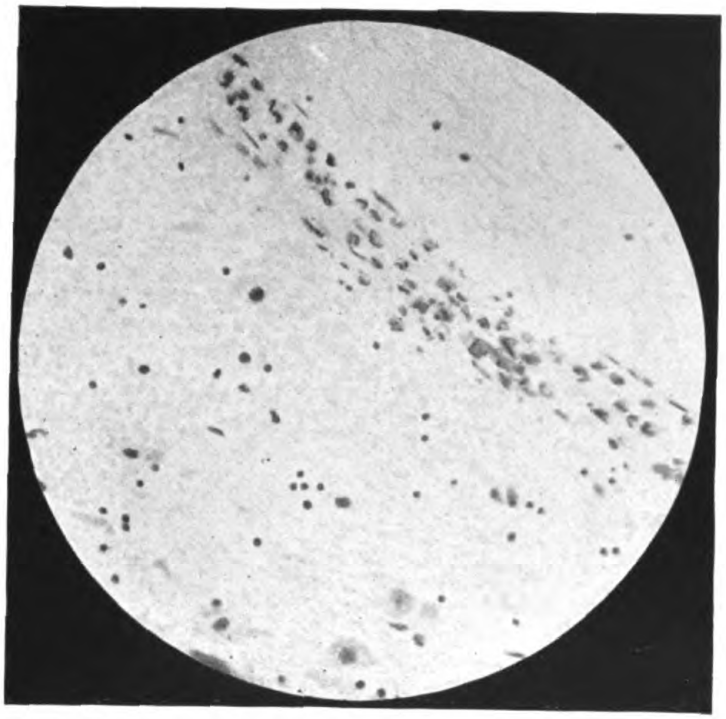

PHOTO 23.—A branch of the anterior central artery passing into the anterior horn of the spinal cord.

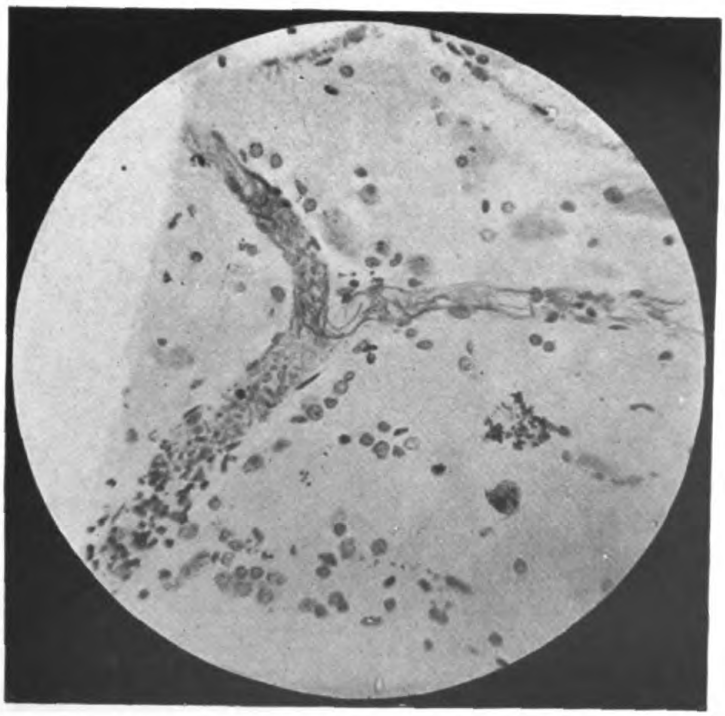

PHOTO 24.—Thrombosis in a small vessel in the anterior cornu. Note the fibrin.

present elsewhere (photo 30). The nuclei had migrated to the side of the cell in many instances, but in others it still remained central. The neuronic processes were not broken to any great extent; various stages of neuronophagy were observed (photos 32, 33). Many of the nerve fibres in the lateral columns of the spinal cord were in a state of necrosis, the myelin sheath being destroyed to a considerable extent, and the axis cylinders swollen and twisted.

On comparing the reaction phenomena in the two series of experiments we find that although they differ markedly in degree they have one important feature, among others, in common, viz., the same anatomical distribution of the inflammation. In our last paper we drew a comparison between the subacute vascular lesions found in infected sciatic nerves and those seen in the brain of general paralytics, and assigned to both a similar mechanism of production—infection of the lymphogenous path. The induction in our more recent experiments of acute lesions in the spinal cord which follow the anatomical distribution of the subacute series has widened the application of the research very considerably, and we now venture to extend our previous deductions to the etiology of acute anterior poliomyelitis. Firstly, however, it will be necessary to review briefly the work which is revolutionising opinion on the etiology and pathology of this disease.

An excellent account of the gradual development of our knowledge of poliomyelitis is to be found in Römer's monograph, chap. 4. Heine first drew attention to the spinal cord as the seat of the pathological process, and his paper was followed by many dating from the middle of last century up to the present time. Opinion regarding the pathology of the disease was based on the examination of chronic and recent cases, and for many years investigators ascribed the symptoms to a primary affection of the nerve cells, even although they admitted the presence of reaction in the interstitial tissues. This, however, was regarded as secondary. Further observation showed that many of the nerve cells were normal, that degeneration affected groups of them, that there was much perivascular infiltration which involved the posterior as well as the anterior horns, and that the pia participated in the process. The theory that a virus exercised a selective action on the nerve

cells gradually lost ground, therefore, and a host of evidence in avour of the interstitial vascular theory culminated in Wickman's papers of 1905 and 1910. Wickman's extensive and accurate observations demonstrate that acute poliomyelitis is characterised by an acute inflammatory process in which both the white and grey matter of the cord are affected as well as the pia arachnoid. The signs of reaction are especially well seen in the anterior horns, and the regions of the cord most affected are the cervical and lumbar enlargements. It is important to note, however, the presence of inflammatory phenomena in Clarke's column, the posterior columns, and elsewhere. Wickman also states that the variations in intensity of the inflammatory process correspond with the vacularity of the affected part; that no ganglion cell changes occur without the presence of lymphocytic infiltration dependent on vessel distribution, and that œdema is an important factor in the causation of the early symptomatology. The whole picture, therefore, is one of a disseminated meningo-myelitis, and taking into consideration the fact that the brain may be affected, especially in adults, a more comprehensive term for the disease in Wickman's own words is disseminated meningo-myelo-encephalitis. To Forssner and Sjövall we owe the observation that the intervertebral ganglia are affected in the same way as the spinal cord, and Redlich and Mönckeberg have found that there are no signs of inflammation in the peripheral nerves, a point of considerable significance as will be seen later.

The chief character of the inflammatory reaction described by Wickman is an infiltration of the walls of both the central and the peripheral vessels with one or more layers of cells. In addition to this perivascular infiltration, which is confined to the veins, there is an invasion of the tissues by round cells which may be scattered diffusely or collected into definite foci. Small hæmorrhages are frequently seen in the grey and occasionally in the white matter. There are neither emboli nor thrombi.

This investigator lays great stress on the necessity of a correct knowledge of the nature of the infiltrating cells in order that a clear idea of the pathological process may be obtained. Most observers have regarded these cells as polymorphonuclear leucocytes, but Wickman maintains that this view is not correct. Most of the infiltrate in the pia mater is undoubtedly of lymphocytic origin, *i.e.*, that the cells have sprung from the wandering lympho-

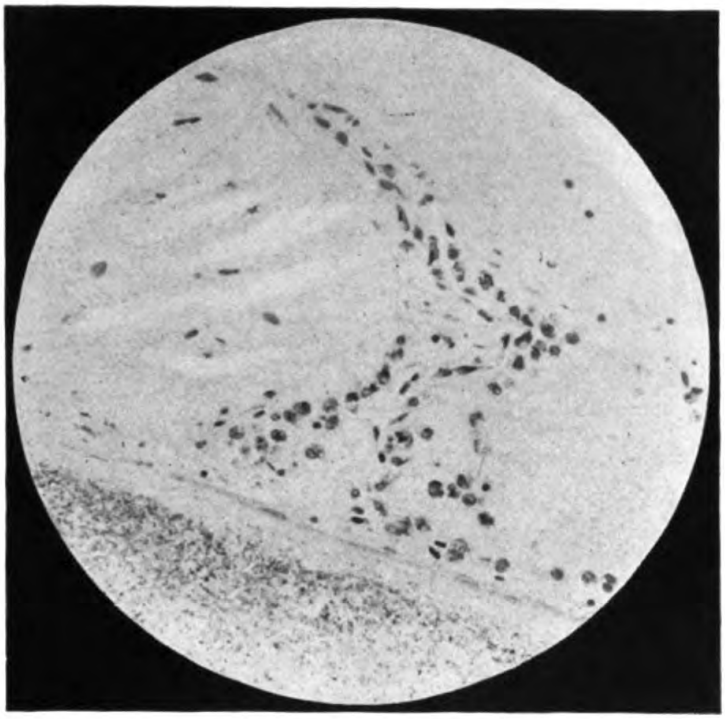

PHOTO 25. Posterior spinal root entering the spinal cord.

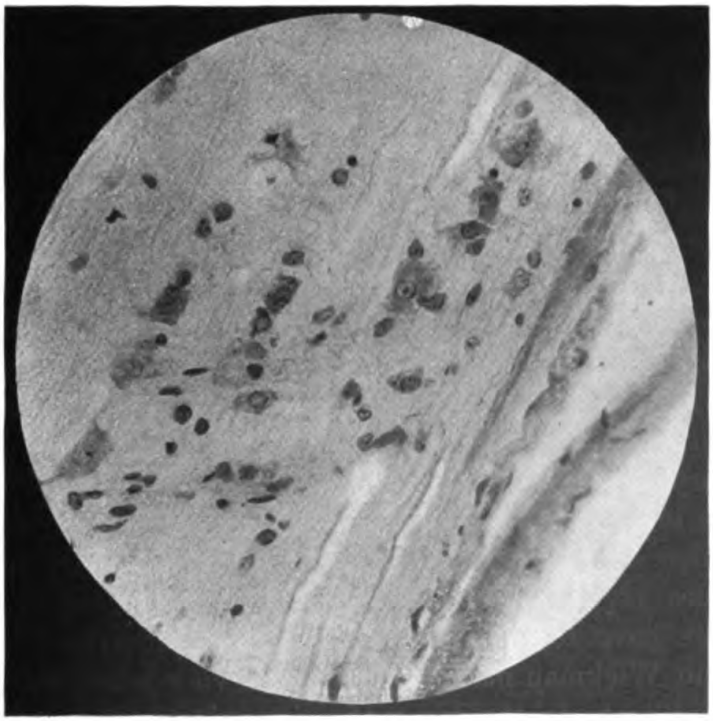

PHOTO 26.—Reaction of the neuroglia cells in the lateral column of the spinal cord. Note the amœboid cells (Alzheimer).

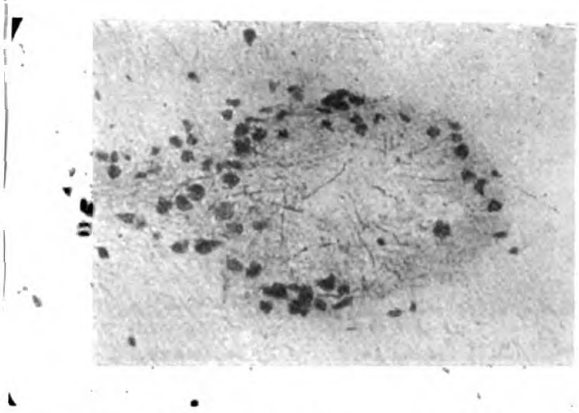

PHOTO 27.—Thrombosis of a vessel in the lateral column of the spinal cord.

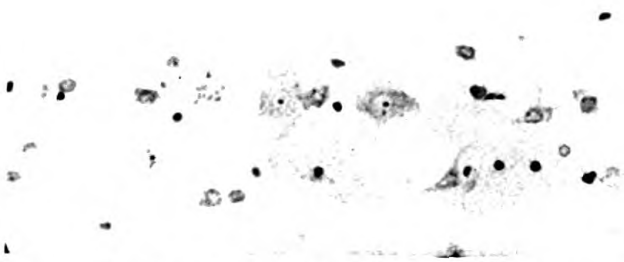

PHOTO 28.—Reaction of neuroglia cells. All stages from a slight swelling to the amœboid cells of Alzheimer may be seen.

PHOTO 29.—Degeneration of nerve cells in the spinal cord. 1. Note the homogeneous atrophy of the nucleus and the coagulation necrosis of the cell body; 2. Solution of chromophile elements.

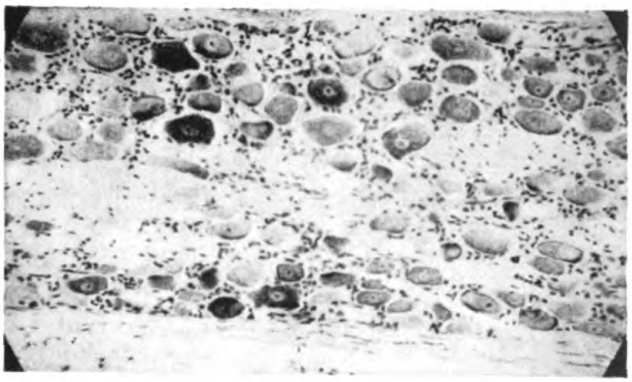

PHOTO 30.—Degeneration of the nerve cells in a posterior root ganglion. 1. Note the proliferation of the capsular cells around the nerve cells.

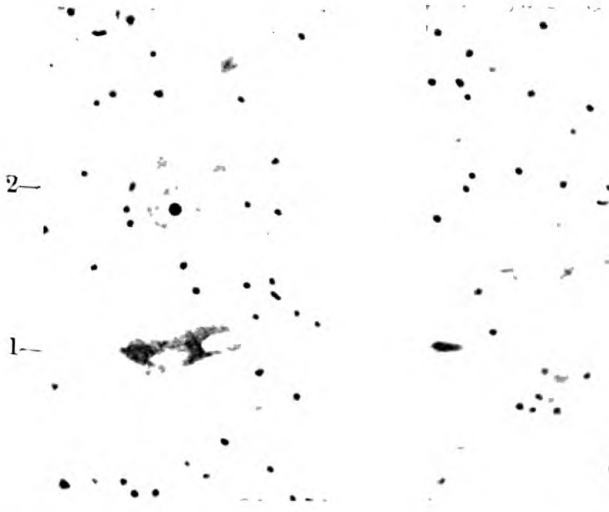

PHOTO 31.—1. Vacuoles in nerve cell; 2. Outline of nucleus indistinct. Solution of chromophile elements.

PHOTO 32. Neuronophagy.

PHOTO 33.—Advanced stage of neuronophagy.

cytes of the adventitial sheath, and Wickman argues that a similar derivation must be admitted for the cells found in the spinal cord. Further, he asks, if they are polymorphonuclear leucocytes why are abscesses never found in the nerve tissues in this disease? He points out also that although the cells under discussion resemble polymorphonuclear leucocytes, to a certain extent they present certain definite morphological differences from this type of cell. In the first place the nuclei of these cells contain less chromatin which is arranged in granules connected by threads to form a network, and although some are rounded the majority show an indentation on one side, which in some cases is so deep that the nucleus resembles closely that of a polymorphonuclear leucocyte. The cell-body is basophile like the lymphocyte but is larger. Wickman has called these cells "polyblasts" and has recognised many intermediate forms between them and the lymphocyte. He found very few hæmatogenous leucocytes in his cases. Fibroblasts and plasma-cells were present. The nerve cells were invaded by round cells—neuronophagy; the neuroglia cells showed signs of irritation and proliferation.

Here then we find ample evidence of a widespread inflammatory reaction, and when the disease is communicated to apes precisely similar lesions are produced. Römer states that in man and apes the so-called poliomyelitis is a non-purulent infiltrative inflammation of a lymphocytic type which affects the pia mater and every part of the spinal cord, but is usually most intense in the anterior horns.

Now if this description of the changes in acute poliomyelitis be compared with the appearances we have found in our experiments, in which an acute inflammation was induced by infecting the lymph stream of the nerves, it will be seen that there are no essential differences. In each instance the adventitial sheath of the vessels of the pia mater and the spinal cord is infiltrated with cells of the same morphological type—the polyblast; and in both cases the infiltration is found in the walls of the veins only—a point to which great importance is attached by Wickman and Römer. The capillaries are dilated and the adventitial and endothelial cells somewhat swollen; a few hæmorrhages are found in the grey matter; neuronophagy in various stages and a marked reaction of the neuroglia cells are present. The pathological changes found in all these clinical and experimental

conditions resemble each other so closely that we consider we are justified in asserting that the mechanism of their production must be the same, and, therefore, just as we have proved that the morbid changes in our experiments are produced by a toxin ascending in the lymph stream of the nerves, so an infection of the lymph system must be held responsible for the lesions in the spinal cord in infantile paralysis.

There are two ways only by which the nervous system can be infected—by the blood stream and by the lymph paths, and a consideration of the results of clinical and experimental observations contained in the recent literature on this subject, indicates that an infection of the lymph path is the mechanism by which the onset and the spread of the acute diffuse inflammation which characterises poliomyelitis is induced.

(1) Infective conditions of the blood, with the formation of emboli or thrombi, cause isolated foci of inflammation in the spinal cord, but nothing resembling a diffuse myelitis in which the periphery is as much affected as the centre. In poliomyelitis there is no evidence of thrombi, emboli, or necrosis, and the capillaries are not affected. Further, histological investigation shows that the inflammation occurs in connection with the veins and is not most marked around the central artery.

(2) Assuming that infantile paralysis is hæmatogenous in origin, how is it that the cervical and lumbar enlargements are especially affected; and why do the areas supplied by the cerebral arteries escape to such an extent?

(3) It is recognised that when once the inflammatory condition has been established in the spinal cord it spreads by direct continuity. This points to an infection of the lymph system.

(4) The virus is rarely found in the blood of the human subject or of apes suffering from the disease.

(5) A woman may suffer from poliomyelitis during pregnancy and the child may be quite healthy; and yet we know that the virus can pass through the densest filter.

All these facts are against the hæmatogenous theory; on the other hand, there are many in favour of the lymphogenous theory.

(1) From an extensive observation of the pathological anatomy Wickman has established a complete analogy between the phenomena present in poliomyelitis, rabies, and the ascending paralysis of Landry.

(2) A similar analogy can be extended to Borna's disease, a contagious affection in horses in which the lesion attains its greatest intensity in the olfactory area of the brain, and the virus spreads along the olfactory nerves from the nasal mucous membrane.

(3) It is now established beyond dispute that organisms, toxins, chemical fluids, and inert substances readily travel along the lymph system of nerves and so reach the spinal cord. Much of the work bearing on this point was referred to in our last communication, and tetanus may be cited as the classical example of infection of the spinal cord by this mechanism.

(4) The vessels of the central nervous system are surrounded by lymph sheaths, and it is in these that the inflammation in poliomyelitis and in the spinal cords in our experiments is principally localised. Further, the extension of the lesion takes place along this path. The fact that the process is most marked in the anterior horns cannot be employed as an argument against the lymphogenous theory, because it is now admitted that the virus which causes the disease has a marked affinity for the lymph system, and, therefore, flourishes best in the areas most liberally supplied with vessels and lymph. And so, as Wickman points out, the anterior horns are most affected in the lower lumbar region, while in the upper lumbar and lower dorsal segments the most intense reaction is found in Clarke's column.

All this evidence, therefore, demonstrates that the part played by the lymphatic system in the pathogenesis of various lesions of the nervous system is all important, and Wickman and Römer have concluded that it is to an infection of this mechanism that poliomyelitis and analogous affections owe their origin. Römer has recorded one extremely interesting experiment in his work on the production of poliomyelitis in apes by the injection of an emulsion of spinal cords taken from victims of the disease. In this one of a series of experiments, the emulsion was injected into the sciatic nerve, and this particular animal developed the disease very rapidly, and the symptoms appeared first on the side of the injection. Römer agrees with Wickman in upholding strongly the lymphogenous theory, and, on clinical and experimental grounds, considers, with him, that the virus has its habitat in the intestinal tract and thence finds its way along the lymph

paths of the sympathetic nerves to the central nervous system. Once this is reached, an infection of the lymph in the spaces of the adventitial sheath of the veins in the pia mater and spinal cord immediately follows, with all the reaction phenomena characteristic of acute poliomyelitis.

This explanation of the genesis of infantile paralysis receives support from the fact that poliomyelitis in children is associated with, or preceded by, gastro-intestinal disturbances, and in connection with this it may be stated that the mesenteric glands are found enlarged in fatal cases. Further, it has been already pointed out that in this disease the peripheral nerves are unaffected, and that an intense reaction is present in the posterior root ganglia. Now we know that the sympathetic nerves join the mixed nerve near the distal end of the root ganglion. It is possible, therefore, that the exciting agent has reached the central nervous system from the intestine by the sympathetic nerves entering at this point. All this evidence together with the fact that it has been proved that organisms and toxins travel along the lymphatic system of nerves with great facility, affords strong support for the view enunciated by Wickman and Römer.

The whole question of the infection of this lymphatic system and the lesions in the central nervous system which result therefrom is worthy of the greatest attention, with the aim of providing a working hypothesis which can be applied in trying to elucidate the pathogenesis of several diseases, acute and chronic. We have already applied the principle to general paralysis of the insane, and, if we look at the cortical periarteritis found in trypanosomiasis, a periarteritis admitted to be essentially the same as that seen in general paralysis (Mott, Martin), it is evident that here again we have to deal with a lymphogenous infection. The works of Homén, Wickman, and Römer, and the data derived from our most recent experiments, show conclusively to what an extent the central nervous system is exposed to acute infections along the lymphatic paths, and how readily and at times speedily the process is propagated. It is this continuity of extension which is characteristic of the lymphogenous infections, a continuity which reaches its maximum in the acute ascending paralysis of Landry.

One very important point in connection with this question of propagation has been drawn attention to by Homén, viz., that the

posterior root ganglia act as traps or filters and form a sort of barrier against the further centripetal passage of organisms. This remarkably interesting observation, though at present difficult of explanation, would, however, seem to be of special significance, because in all our experiments we have found a large collection of plasma-cells and polyblasts, accompanied by hæmorrhage, at the proximal end of the ganglion. This appearance is suggestive of a special reaction at this point, and it may be that this indicates some mechanism of defence against the further upward extension of toxins and organisms, and that an additional factor is introduced by some local anatomical peculiarity. It is interesting to note in this connection that an analogous though more intense lesion is found in the ganglion in herpes zoster, and we would suggest that this disease also falls into the lymphogenous group because we have seen the typical clinical appearances and pathological lesions of herpes zoster following an empyema accompanied by an inflammation of the intercostal nerves. It is not improbable, therefore, that Homén is right in calling the root ganglion a trap for noxious agents ascending in the lymph stream of nerves, and if we assume that it is a defence mechanism and herpes zoster an expression of a lymphogenous infection of the nerves, then the suggestion might be put forward that the exciting agent which is not trapped passes on into the spinal cord and causes meningo-myelitis in some form or other.

The question of the origin, character, and significance of the cells of reaction found in the central nervous system under different conditions requires further notice. The subject has been investigated by a large number of observers, but the results published have been so contradictory that a considerable amount of confusion exists at the present time. Attention has already been drawn to this by Bonfiglio in his paper on the results produced in dogs by administering lead carbonate to them. The most prominent types of cells of reaction in the nervous system of these dogs were the Stäbchenzellen and the compound granular corpuscles. In his discussion on the origin of these cells he mentioned that Nissl and Alzheimer had expressed the opinion that the Stäbchenzellen were derived from the adventitial elements of vessels in cases where active changes were taking place in their

sheaths. On the other hand Cerletti and Sträussler, relying on the presence of intermediate forms, were convinced that they sprang from neuroglia cells. Bonfiglio and Perusini have described conditions in which Stäbchenzellen were found throughout the grey and the white matter of brains in which there was no infiltration of the vessel walls, but regressive changes were evident in the cells of the adventitial sheath. Bonfiglio referred also to instances in the human subject in which both the adventitial cells and the neuroglia were reacting and apparently the Stäbchenzellen could be the offspring of both. Such was the case in the dogs to which the lead salt had been administered, and a dual origin was recognised.

Then with regard to the compound granular corpuscles, Gitterzellen (Nissl), Körnchenzellen (Friedmann), Abräumzellen (Merzbacher), a similar divergence of opinion has existed. Friedmann divided these cells into two groups, granulo-adipose cells and epithelioid cells. The former he derived from white blood corpuscles and the latter from neuroglia chiefly, but also from adventitial cells. Schmaus has admitted a double origin in foci of softening—in the early stage from polymorphonuclear leucocytes; later, another type of cell, corresponding to the epithelioid cells, appeared. Of the origin of this type he was uncertain, but he thought they sprang from adventitial and endothelial cells. Merzbacher has called these cells Abräumzellen, indicating their scavenger function thereby; he traced them from adventitial cells and the neuroglia. Nissl has stated that not all the cells which contained fat were compound granular corpuscles, and he limited the term to those which acted as phagocytes; these he derived from adventitial and endothelial cells. Schroeder found these cells in a focus where there was some destruction of nerve fibres, but no proliferation of the elements of the vessel walls, and he concluded that they arose from the neuroglia cells. Bonfiglio, from his experiments, decided that they had a dual origin, from the cells of the vessel walls and from the neuroglia. He criticised the statement of Nissl that too much importance was not to be attached to the presence of intermediate forms; that might be necessary when dealing with isolated cells or with cells in small numbers, but when the intermediate forms were present in large numbers they should not be ignored.

The origin of the plasma-cells and polyblasts, the prominent

cells in our experiments, has been even more keenly discussed. Since 1891 when Unna suggested that they sprang from histogenous elements, and 1895 when Marschalkó traced them from hæmatogenous elements, the conflict has been constantly waged, but the trend of recent investigations seems to be towards the theory that they owe their origin, in most cases, to the wandering lymphocyte which, in turn, is derived from the sessile perivascular cells forming the normal constituents of the vessel walls, *i.e.*, from the adventitial cells. Under certain circumstances they may arise from connective tissue cells (Pappadia and Catola) and certainly in our acute series of experiments the connective tissue cells were taking part in the active proliferation occurring in the pia mater.

Wickham concluded that, in his cases, the polyblasts sprang from the wandering lymphocyte, and that the hæmatogenous leucocyte did not participate in their formation. He admitted that some of the small neuroglia cells offered appearances difficult to distinguish from the polyblasts, but the facts that these cells were found in the pia-mater, where there are no neuroglial elements, and in the sheath of the vessels, where they were evidently derived from the adventitial cells, are against such an origin. Moreover, in our cases, although a consideration of the small neuroglia cells might leave one in doubt, yet observation of the whole reaction of the neuroglial elements makes it certain that the polyblasts do not owe their origin to the neuroglia.

Wickman adduced the following arguments also against the leucocytes being the progenitors of the polyblasts. He recognised that the nucleus of the polyblast may be so much lobed as to resemble the nucleus of the polymorphonuclear leucocyte, but it possesses granules of chromatin united by a reticulum which is not seen in the leucocyte; and in tissues fixed in alcohol, the polyblast cell-body is stained by the pyronin-methyl-green method while that of the leucocyte is not, and by other suitable staining neutrophile granules can be demonstrated in the leucocyte which are absent from the body of the polyblast. Wickman stated also that in the advanced stages in his cases the wandering lymphocyte developed not into the polyblast but into the plasma-cell. Now, plasma-cells are recognised as being characteristic of sub-acute inflammatory conditions (Schmaus and others), and it is probable that the appearance of the plasma-cells in Wickman's cases meant that the acutest stages of the inflammatory process had passed

and the intensity of the irritant was such as to call forth the plasma-cell type of reaction. Joannovics, Marschalkó, and others have demonstrated experimentally that plasma-cells are absent in the acute stages of inflammation but they appear during the recovery stage. This view is supported by our experiments. The plasma-cells were present in the cases in which the capsule had not burst, and there was no growth of the organisms and the tissues; and, in this series, it was outside the dura mater only, *i.e.*, near the seat of the capsule, that cells resembling polyblasts were found. We would suggest, therefore, that both these types of cells have a common origin in the adventitial cells of the vessel walls, but that the plasma-cell is the product of one degree of irritation and the polyblast of another and more intense irritation. Others have demonstrated experimentally that plasma-cells are absent in the acute stages of inflammation, but appear during the recovery stage.

Now, if we review the statements made so far we shall see that the origin of all these varieties of cells—plasma-cells, polyblasts, epithelioid cells, Körnchenzellen, and Stäbchenzellen—has been attributed to all the non-nervous elements in the central nervous system—adventitial cells, endothelial cells, and neuroglia. This can be seen at once from the accompanying table, which is not intended to represent a complete list of those who have worked at this subject but to show at a glance what has been stated at some length in the preceding pages.

The fact that all these forms of cells of reaction—plasma-cells, polyblasts, epithelioid cells, and Körnchenzellen—have by one or more observers been traced through the wandering lymphocyte to the adventitial and endothelial elements suggest that there must be some principle underlying these reactions which, if discovered, would prove that these various cells are not so independent of each other as they have often been assumed to be, and would clear away much of the confusion at present obscuring this question. One of the chief difficulties has been the insistence on the use of the word "typical." We constantly see reference made to the "typical" plasma-cell, to the "typical" polyblast, or to the "typical" Körnchenzell, and by many the cell which was not a "typical" cell of some sort has been left out of consideration. Another difficulty has been that the investigations have not been carried out on sufficiently broad lines; that which has been simply

one stage in a complex inflammatory process has been examined without due attention being given to the conditions under which the process arose, and to the earlier stages through which it may have passed.

TABLE OF THE ORIGIN OF THE CELLS OF REACTION IN INFLAMMATORY PROCESSES IN THE NERVOUS SYSTEM.

	Polyblast.	Adventitia and Endothelium.	Hæmatogenous Elements.	Neuroglia.	Connective Tissue.	Plasma-cell.
Plasma-cell.	...	Pappenheim.	Marschalko.	...	Unna.	...
	...	Marchand.	Nissl.	...	Catola.	...
	...	Joannovics.	Alzheimer.	...	Pappadia.	...
	...	Homén.	Righetti.	...	...	...
	...	Wickman.	...	...	...	...
	...	Schmaus.	...	...	...	...
Polyblast.	...	Maximow.	...	...	...	...
	...	Homén.	...	...	...	...
	...	Wickman.	...	...	...	...
Epitheli-oid Cell.	Homén.	Friedmann.	...	Friedmann.	...	Nissl.
	Wickman.	...	...	...	...	...
	Fieandt.	...	...	...	...	...
Körnchen-zell.	...	Friedmann.	Friedmann.	Friedmann.	...	...
Gitterzell.	...	Nissl.	Schmaus.	Schroeder.	...	...
Compound granular corpuscle.	...	Merzbacher.	...	Merzbacher.	...	...
	...	Bonfiglio.	...	Bonfiglio.	...	...
	...	Schmaus.	...	...	...	...
Stäbchen-zell.	..	Nissl.	...	Sträussler.	...	...
	...	Alzheimer.	...	Cerletti.	...	...
	...	Bonfiglio.	...	Bonfiglio.	...	...
	...	Perusini.	...	Perusini.	..	...

Hints of the necessity of looking beyond the mere type of cell present have been made by some observers; for instance, Wickman has suggested that the nature of the infiltrating cells depends on the irritating agent and not on the localisation, and Bonfiglio expressed the opinion that in different pathological conditions these elements may have a varying origin. There can be no doubt that in order to understand the significance of a reaction occurring in the central nervous system it is necessary to consider the cause of the inflammatory process, its intensity, and the length

of time it has acted, together with the morphological form of the cells infiltrating the tissues.

A more comprehensive communication on this subject has been published by Friedmann, in which he gave the results of his investigations regarding the reactions which accompanied different degrees of irritation in the nervous system. He started with a simple form of morbid change, viz., hyperæmia, and he found that the vessels and the lymph spaces in their sheaths were dilated, and that regressive changes had occurred in the elements forming the vessel walls. When a hæmorrhage took place amongst the nerve tissues, a definite reaction followed. The blood soon disappeared chiefly in the lymph spaces of the vessels in the neighbourhood, and at the edge of the area containing the hæmorrhage a cyst wall formed, consisting largely in dense connective tissue fibrils, vessels, and cells. Outside this in the tissues limiting the softened area there was a looser cicatricial tissue infiltrated by a large number of Körnchenzellen. In cases of thrombosis or embolism there was a complete anæmia, and an intense œdema in the centre of the focus. In a short time this centre was occupied by a detritus of broken-down nerve cells and fibres, and in this were many Körnchenzellen. Around the area of softening an irritative reaction of the blood vessels occurred and the whole tissue was infiltrated by Körnchenzellen. Experiment proved that these cells appeared on the second day, and that their numbers increased during the following days. Then later the fibrous organisation and sclerosis characteristic of encephalomalachia followed. These were the constant results after simple destruction of nerve tissues by vascular lesions.

Then in his experimental work he showed that slight aseptic wounds of the brain produced a central necrosis immediately surrounded by a necrobiotic area with Körnchenzellen, and a peripheral zone with round cells, new vessels, and a proliferation of the fixed tissue elements, leading to a sclerosis. With a more intense irritation, such as the application of corroding agents to the brain, the process was more active. At once, around the necrosed corroded area, there was a condition of irritation of the vessels with hyperæmia, extravasation of blood, and emigration of round cells. By the third or fourth day there was swelling of the neuroglia, and many Körnchenzellen were present; and from the fifth day a breaking down of nerve tissues was observed, and also

large collections of epithelioid cells and Körnchenzellen. The vessels were thickened by proliferation of endothelial cells, new vessels were formed and organisation followed. Here again there was a destruction of nerve tissues, but the cause had acted also as an irritant to the mesodermal tissues.

In still more acute cases, the result of a meningitis or an invasion by the influenza bacillus, the hyperæmia, with or without a softening, was followed by an active proliferation of the fixed tissue elements. From this proliferation there appeared Körnchenzellen and other large, round cells, the epithelioid cells. These last were often not limited to the sheaths of the vessels but infiltrated the tissues, without, however, any real softening being present. Much new vessel formation occurred. The termination of the acute process was either a primary organisation and cicatrix—and this was the result in the corroding experiments—or, as happened in the encephalitic cases, the young cells formed a protoplasmic network whose meshes were occupied by round cells, and then later this contracted and formed a cicatrix. In other areas there was a large collection of fibroblasts, or, where a central necrosis had occurred, the usual cyst wall was found. In cases of abscess in the central nervous system there was a migration of leucocytes in the first few hours, and the neuroglia cells were swollen. On the third day the nerve tissues were breaking down and Körnchenzellen were just as numerous as the leucocytes. By the tenth day the area of infection was surrounded by a membrane consisting in (1) a layer with round cells, new blood vessels, Körnchenzellen, and disintegrating nerve tissues; (2) a layer with many vessels and fibroblasts forming a granulation tissue; (3) a layer in which the nerve tissues, although injured, were still preserved; the walls of the vessels were infiltrated, and the neuroglia cells were reacting.

Friedmann from this work arrived at the following conclusions:—

(1) All the different forms of reaction can be produced by the same agent or by any sufficiently strong stimulus, whether it be that which causes a meningitis or whether it be an embolism, an aseptic wound, an exogenous corroding agent or excessive heat.

(2) The whole complex series of changes, from the small round-celled infiltration to the softening with Körnchenzellen or to the intense inflammatory reaction with the large-celled

proliferation and giant cells, may be present in one and the same case.

(3) The more intense inflammations progress by steps, and these steps correspond to those pictures of the morbid process which we have been accustomed to regard as separate forms of encephalitis—hæmorrhagic, parenchymatous, or hyperplastic.

This work is of the greatest importance as showing that although the inflammatory process under different conditions is exceedingly complex, there are certain principles underlying it which enable us to recognise in it different degrees of one process rather than several independent series of reactions. It demonstrates that not the particular kind of cause but its intensity and the length of time it acts on the tissues are the essential factors in determining the result. The initial stage may be a gross destruction of nerve tissue, and this will be followed by a reaction whose function it is to remove the débris, as in cases of hæmorrhage, thrombosis, or embolism; or it may combine a condition of irritation of the mesodermal tissues simultaneously with that of destruction, as in the action of corroding agents; or it may exhibit at first a condition of irritation by bacilli or their toxins, and the destruction of the nerve tissues will occur later. And as Friedmann has shown, the character of the reaction will change from day to day in the course of the process, especially where the irritation is the first result and the destruction follows.

Now although the initial stages may vary so much, the final stage following the destruction of the nerve tissues presents fairly uniform characters, but here also the question of degree again arises. The necessity of separating these final from the initial stages has been pointed out by Schmaus. He admits the continuity of the stages in the inflammatory processes occurring in the nervous system, but states that not all are the direct result of the action of the irritant. In some acute processes, where the irritant acts for a short time only, a slight parenchymatous degeneration is produced, and the products of this degeneration may be got rid of by a reaction of the neuroglia without any infiltration of the tissues. But, if the breaking down of the tissues is more extensive, it is found that the reaction is more complicated. Besides the neuroglial overgrowth there is a large collection of phagocytic wandering cells.

Again, the inflammatory process may be so acute that it affects

not only the nerve cells and fibres, but leads to a softening of all the tissues in the area attacked. This, at first sight, offers a very different picture to that which characterises an ordinary simple softening. It is generally considered that a simple softening is distinguished by the presence of detritus and Körnchenzellen; but if the area of softening produced by an embolus is examined within a few hours of the blockage of the vessel it will be found that there is a swelling of the tissues, and the process goes on to the breaking down of the various elements; it is a liquefactive process, but is also inflammatory because it is accompanied by the emigration of leucocytes; only later do the larger phagocytic elements appear. In what is called an inflammatory softening the tissues become infiltrated with leucocytes, then break down, *i.e.*, liquefy, and there remains a collection of degenerated tissue to be removed. Now the removal of this débris is accomplished by cells similar to those which act as phagocytes in the case of a simple softening, viz., by Körnchenzellen. But these cells are not the direct product of the disease-producing agent, they are called forth by the presence of the débris of the tissue destroyed by the noxious agent. The Körnchenzellen are the type of cells which remove the products of degeneration and they are recognised as the phagocytes of the central nervous system.

Therefore, whatever may be the cause, the characters of the softening are fairly uniform, and are to be distinguished from those of the primary reaction which is the direct result of the action of the irritating agent. Schmaus recognised, however, that there is no line of demarcation to be drawn between the two; the elements of the secondary process are intimately mixed with those of the primary reaction. Theoretically, the phases of absorption and organisation may be sharply separated from the primary reaction which includes the circulatory, regressive, and progressive changes described by Schmaus and others, but practically it is found that the elements capable of removing the débris are present at the same time as those of the primary reaction. Schmaus stated that the separation presents least difficulty in the case of ischæmic degeneration of the nerve tissues following ligature of the aorta, but it is not possible in more chronic conditions. In the simultaneous degeneration of the parenchyma, the infiltration with wandering cells, and the overgrowth of the neuroglia, we see a temporary phase of a process which can end in sclerosis, but which

during its course will present all the stages of inflammation. Besides, in toxi-infective myelitis the degeneration of the parenchyma may be the result of the disease-producing agent which is responsible also for the vessel changes, the exudation, the infiltration, and neuroglial overgrowth; or the infiltration and neuroglial overgrowth may be called forth by the presence of degenerated nerve tissues. Further, the thrombosis and embolism with the accompanying lymph stasis may be the direct result of the inflammatory irritant. In all these cases the different causes and signs of reaction will be so interwoven that it is impossible to separate them sharply into primary and secondary processes.

With regard to the primary reaction, although its characters change from day to day, and therefore the duration of the action of the irritant must be considered in judging of the appearances met with, yet it will be found that the type of the reaction depends on the quantity and the intensity of the noxious agent. We have already referred to the statement of Schmaus that a slight amount of parenchymatous degeneration is followed by a simple reaction of the neuroglia cells; that in the early stages of a softening caused by an embolus there is a swelling of the tissues and a small emigration of leucocytes; and that with an acute inflammatory softening the tissues become infiltrated with leucocytes and there is an early reaction of the mesodermal elements.

The work of Nissl also demonstrates the variation of the type of cells in reactions following different degrees of irritation. The injection of Indian ink into the subdural space led to the appearance of plasma-cells in the adventitial sheath of the vessels; after producing a localised necrosis of brain tissue by freezing he found an immense overgrowth of the cells of the endothelium and of the cells of the adventitial sheath of the vessels with the formation of fibroblasts; few plasma-cells were seen in the area of intense reaction though they were numerous in the sheaths of the vessels in the surrounding tissues. Again, painting the meninges with chromic acid produced necrosis of the subjacent tissues associated with the appearance of polymorphonuclear leucocytes in the focus of injury; this was surrounded by a collection of fibroblasts, and very few plasma-cells were present except in the zone of tissue limiting the necrosed area. Here we see not only that slight irritations led to the appearance of plasma-cells, but also that with

intense irritation, although the centre of reaction was occupied by leucocytes and fibroblasts, yet outside these where the irritation was less, the plasma-cell was again the type of cell present.

Joannovics, Marschalkó, Reiz, and others have demonstrated that the plasma-cell is the type of cell which accompanies subacute inflammations in clinical cases as well as in experimental lesions, and in our paper of last year we stated that at the seat of maximum intensity in the septic series there was a reaction characterised by the appearance of polymorphonuclear leucocytes and fibroblasts, and, in the area furthest from the source of the irritant, by the appearance of plasma-cells; in the intermediate portion there were fewer fibroblasts and the plasma-cells began to come into prominence.

Now if we turn to the results of the experiments of this year we find valuable support for the view that the character of the cellular reaction found in the nerves and in the spinal cord when the disease-producing agent approaches by the lymph stream depends entirely on the potency of the irritant, and further, that many of the so-called varieties of cells have one and the same origin. When the capsule had not burst and the tissues were attacked by the toxins only, we found in the spinal cord that the reaction produced was of the plasma-cell type. In the pia mater and in the peripheral portions of the cord the cells possessed all the characters of fully developed plasma-cells; further away from the source of the irritant the typical appearance was lost, and there were present rounded deeply stained nuclei in the adventitial sheath surrounded by a very little protoplasm. This indicates a less degree of reaction. At the same time the neuroglia cells lying adjacent to the adventitial sheath were swollen. But, in the other series in which the capsule had burst and the organisms had grown in the tissues, there was an altogether different picture. All the cells of the pia mater and of the vessels in it, and also of many of the vessels within the spinal cord, exhibited an intense proliferation with the production of another predominating type of cell, the polyblast; there were also collections of Körnchenzellen showing various stages of development. Now it will be remembered that in the subacute series there were some polyblasts in the reaction outside the dura mater, *i.e.*, quite close to the capsule. It is at this point that the results of the two series of experiments may be said to meet.

But seeing that in these two series of experiments a culture of the same organism was employed, and seeing also that the experiments were carried out on members of the same species of animals, living under identical conditions, and that the animals lived about the same length of time after the operation, we consider that the difference in the reaction in the two series must be attributed to the difference in the quantity and the intensity of the irritant. The reactions in the spinal cord were produced in both instances by infected lymph which spread by the same path and therefore attacked the same cells, viz., the cells of the adventitial sheath of the vessels. There can be no doubt that if the capsules in the second series of experiments had not burst the reaction would have been of the plasma-cell type, *i.e.*, the type of cells characteristic of the subacute inflammations, but as the capsules had burst and the organisms had grown in the tissues, the reaction was of the polyblast type, *i.e.*, the type of cells characteristic of the acute inflammations in the central nervous system. Now these cells were the direct product of the disease-producing agent, and therefore the conditions correspond to the primary inflammations of Schmaus. But we have already seen that in some areas there were small collections of Körnchenzellen; and it is certain that if the animals had lived a little longer and the nerve elements had broken down under the influence of the more prolonged action of the irritant, the tissues would have been infiltrated with these cells and the condition would have corresponded to the secondary inflammations of Schmaus.

The distinction of the secondary from the primary reaction in the inflammatory process and the recognition that in the secondary reactions the Körnchenzellen have appeared, not as a direct result of the action of the irritant, but because of the presence of degenerated tissues, is a very important step in the elucidation of this question. Not only can a definite stage be recognised by the presence of these cells, but what is even more important is that we have in the statements of Friedmann and Schmaus evidence that this type of cell is always associated with a particular function, and the morphological form they assume is due to the fact that they have imbibed a certain amount of degenerated material.

But not all the cells which take up the degenerated material possess the form of a typical Körnchenzell. Friedmann, when speaking of the difficulty of distinguishing epithelioid cells from

Körnchenzellen, mentioned that the cytoplasm of the epithelioid cell may contain a relatively small amount of fat or of myelin droplets; usually, however, the cell-body is clear and exhibits a network in its protoplasm, or it may be homogeneous. Various forms and sizes of the nucleus and of the cell-body are met with; there may be cells smaller than the typical Körnchenzell, in whose cytoplasm a little fat or myelin may be found, and there may be larger cells in which division often occurs; in these the nucleus is large, amœboid, or irregular, or there may be several nuclei in one cell, and in that case the amount of protoplasm is relatively small and is distributed irregularly. We are therefore forced to recognise many forms which are not quite typical of the epithelioid cell.

But it is not only in the removing of disintegrated tissue that the phagocytic action of the epithelioid cell is displayed. Homén has shown that when micro-organisms have to be dealt with, polyblasts and epithelioid cells predominate in the tissues. He demonstrated by experiment that injected tubercle bacilli are only occasionally seen in fibroblasts—and under that term he included adventitial cells—or in endothelial cells, and practically never in the neuroglia cells or their derivatives; on the other hand the polyblasts and epithelioid cells or epithelioid polyblasts were active phagocytes and often contained several bacilli. Now this action in common exhibited by the two forms of cells demonstrates a close relationship between them. This has been recognised by Homén and Wickman who consider that the epithelioid cells are derived from polyblasts. Fieandt also has stated that epithelioid cells are polyblasts or are derived from them. In our acute series of experiments it was impossible to say where the polyblasts ended and the epithelioid cells began, and it must be remembered that in the acute conditions found in this series the nerve structures had been considerably affected by the irritant so that products of degeneration were present as well as toxins. But polyblasts are cells which are found in the primary stage of inflammatory processes and they have been shown to be phagocytes of micro-organisms, while epithelioid cells are phagocytes of micro-organisms and also of broken-down products of nerve tissues. Körnchenzellen, epithelioid cells, and polyblasts, therefore, appear to be so intimately related that their division into three distinct types of cells is purely artificial and arbitrary; they should rather

be regarded as three morphological forms of the same cell under differing conditions. Reference to the appended table of the origin of the cells of reaction to irritants in the central nervous system shows too that all three forms of cells have been traced eventually by various observers from the elements of the adventitial and endothelial layers of the walls of the vessels; and this is another point in common between them.

But in the subacute series the plasma-cell appeared as the predominating cell, and it was also the offspring of the cells of the adventitial sheath. The irritant in these cases was just strong enough to call forth, in the pia mater, cells with the characteristics of plasma-cells, while within the spinal cord the reaction was demonstrated by a swelling of the nuclei in the adventitial sheath of the vessels and by a slight increase in the amount of protoplasm around them; this was evidently the earliest stage of reaction. Outside the dura mater, near the seat of the capsule where the process in this series was most intense, we found polyblasts and epithelioid cells, some of them containing several nuclei. These were scattered amongst a large collection of plasma-cells, many of which still retained the characters of these cells, but others exhibited various degrees of change which might be considered as intermediate forms between plasma-cells and epithelioid cells. This result, which we have already spoken of as the meeting point of the two series of experiments, will explain the statement made by Nissl that the epithelioid cells are derived from plasma-cells.

The precise origin of the cells composing an inflammatory reaction is always a matter of great difficulty, and some points must remain obscure, but a consideration of the mechanism by which the inflammation is produced ought to prove of very considerable assistance, and this seems especially so in the case of lymphogenous infections. In experimental lymphogenous infection of the spinal cord of a subacute nature, where all the inflammatory phenomena are extravascular and the path of the toxic lymph can be traced accurately, we find that in addition to the proliferation of the fibrous tissue in the meninges the only structures which react are the adventitial cells of the veins and capillaries and the neuroglia cells immediately surrounding them. The adventitia takes an extremely important part in the production of the cells of reaction, and this is not to be surprised at seeing that the

cerebro-spinal lymph flows directly into its spaces. Hence when a toxin gains the central nervous system by the lymph stream the cells of the adventitial sheath are the part of the vessel to be first attacked, and should the irritant be weak or permeate the tissues slowly no other phenomena need occur for some time. In more acute conditions, however, it is evident that the endothelial cells join in the process, and with a still greater degree of intensity of the infection we find that intravascular changes, such as hæmorrhage and thrombosis, make their appearance.

But not only does the intensity of the reaction in its primary stage vary with the potency of the irritant; the forms assumed by the cells of reaction also vary. Thus it is that in our experiments we find changes ranging from simple swelling of the nuclei together with a slight increase of the protoplasm around them to fully formed plasma-cells and polyblasts, and as the process advances these cells often become reticulated or epithelioid in type, and by the imbibition of products of degeneration assume the characters of the compound granular corpuscles which so constantly are a feature of the secondary phases of inflammation. The entire reaction, therefore, although it presents several stages, is one continuous process.

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Abstracts

ANATOMY.

THE STRIÆ ON THE FLOOR OF THE FOURTH VENTRICLE

(496) **(Über die Striae am Boden des 4 Ventrikels: Bodenstriae: Striae Medullares Acusticae der älteren Autoren: "Klangstab" von Bergmann.)** FUSE, *Neurol. Centralbl.*, April 1, 1912, p. 403.

PHYTOGENETICALLY the striæ medullares acusticæ are a new formation, and develop with the pons and the pontine grey matter; they degenerate with deep cerebellar lesions in the neighbourhood of the flocculus, and in developmental cerebellar defects, where the white matter of the middle cerebellar peduncle and flocculus is involved, they are very imperfect and sometimes entirely awanting.

S. A. K. WILSON.

PHYSIOLOGY.

HYPERTROPHY OF THE COCK'S COMB AND TESTES FOLLOWING REMOVAL OF THE PINEAL BODY.

(497) **(Ipertrofia dei Testicoli e della Cresta dopo l'asportazione della ghiandola Pineale nel Gallo.)** C. FOÀ, *Pathologica*, iv., No. 90, August 1, 1912, p. 445.

COMPLETE removal of the pineal body was performed by a special method in 63 chickens, aged from 3 to 5 weeks: 15 survived, 3 being males. During the 2 or 3 months following operation the body-development was retarded; it then overtook that of the controls, and remained within normal limits. After 8 to 11 months the cock's combs and testes showed great hypertrophy (figured). One cock, operated on on the 25th day, crowed thirty-six days before the control, mated forty-seven days sooner, showed 35 gr. greater body-weight, testis was 9 gr. heavier, and comb 38 gr. heavier. At the age of 8 to 11 months the operated animals showed the same degree of body-development and generative capacity as the controls. Autopsy showed absence of macroscopic changes in all the organs of internal secretion, and also in the skeleton and panniculus adiposus. The paper has a full, up-to-date, historical summary.

Conclusions.—(1) The pineal gland is not a rudimentary functionless organ, but is an organ of internal secretion intimately related with the development of the testes; (2) it exercises directly or indirectly an inhibitory action on their development; (3) a pinealismus leads to precocity and exaggerated development of the primary and secondary sexual characters; (4) normal sexual development is accompanied by a physiological regression of the pineal body. LEONARD J. KIDD.

THE RELATION OF THE UPPER CERVICAL CORD TO INNERVATION OF THE LARYNX. (Über die Beziehungen des obersten Halsmarkes zur Kehlkopfinnervation.) ROTHMANN, *Neurol. Centralbl.*, March 1, 1912, p. 274.

(498)

BY a series of experiments on dogs, in which the posterior columns, the grey matter, and the anterior columns of the upper cervical cord (different segments) were cut through, the lateral columns being left, the author found weakness of adduction of the vocal cords as a constant result when the first and second cervical segments were implicated. If the spinal accessory twigs coming from the second segment were cut through on both sides, innervation of the larynx was unaffected: if the twigs above the level of the first cervical root were cut, weakness of adduction of the vocal cords was noticed, as an exhaustion phenomenon: that is to say, after a few inspirations the cords could not be adducted: in a short time they could be approximated, and after a few further respirations adduction again weakened. By the next day no further defect of adduction could be observed. Rothmann thinks that the explanation is that in the operation some filaments of the vagus and bulbar accessorius (jugular foramen) were injured. Apparently, therefore, the persisting defect of adduction produced by the above-mentioned experimental lesion in the first and second cervical segments has nothing to do with the spinal accessorius. The lowermost cells of the nucleus ambiguus do not extend into the cervical cord, and as the animals experimented on showed no defect of respiration it is unlikely that impairment of the respiratory paths could have produced the adductor paresis. Rothmann thinks that there must be some spinal vagus connections which are as yet undetermined. S. A. K. WILSON.

THE NERVES OF THE THYROID AND PARATHYROID BODIES. DARMON. A. RHINEHART, *Amer. Journ. of Anat.*, Vol. 13, No. 2, May 15, 1912, p. 91.

(499)

THE author has failed to find any published work on the nerves of the parathyroids. His work was done by the intra-vitam

methylene blue method, and also by the "double impregnation" method of Cajal; technique described. Not stated on what animal author worked.

A. Nerves of Thyroid.—(1) Are entirely non-medullated, and reach it from the cervical sympathetic ganglia by following the thyroid arteries. (2) Elaborate nervous plexuses exist around all the blood vessels and all the follicles, the nerves forming the latter coming from the plexuses surrounding the smaller arteries. (3) The peri-vascular nerves end in the walls of the blood vessels and furnish the vasomotor supply, while those of the peri-follicular plexuses end on the bases of the epithelial cells, and probably carry impulses influencing secretion. Author failed to find any of these endings entering the cells or their intercellular substance. Each cell does not come into relation with the end of a nerve, but only a few scattered here and there throughout the follicles. (4) All the nerves are varicosed, but do not anastomose. (5) No ganglion cells present. (6) Venous and peri-capillary plexus present.

B. Nerves of Parathyroids.—(1) Come from same set as those of thyroid, and enter along branches of thyroid arteries. These nerves probably all end in the vessel walls, and are vasomotor in function. (2) No ganglion cells present. (3) No nerves round veins or capillaries. (4) Probably no special glandular or secretory nerves exist.

The paper contains five good figures, and references to previous workers.

LEONARD J. KIDD.

ADRENALIN AND THE PULMONARY CIRCULATION. (Adréna-
(500) **line et circulation pulmonaire.)** P. HEGER (*Acad. Roy. de Méd. de Belgique*, 25 Mai, 1912). *La Presse Médicale Belge.*, No. 26. June 30, 1912, p. 487.

HEGER has experimented with Philippson on the action of adrenalin on the pulmonary circulation of dogs, by perfusing Locke's solution of constant temperature and at the appropriate pressure through the hind limbs, liver, brain, and lungs. He recorded the pressure of air in the pulmonary atmosphere. He found that large doses of adrenalin, which produced a considerable diminution in the flow in the limbs, less in the brain, and still less in the liver, caused none in the pulmonary circuit. Injection of adrenalin caused a slightly augmented pressure of the pulmonary air, lasting for about a minute. Heger concludes that there are no vasomotor nerves in the area of the pulmonary artery.

LEONARD J. KIDD.

PSYCHOLOGY.

POETRY AND DREAMS. F. C. PRESCOTT, *Journ. Abnorm. Psychol.*,
(501) Vol. vii., Nos. 1 and 2, pp. 17 and 104.

THE author endeavours to throw light on the nature and origin of poetry, using as a basis Freud's theory of dreams. The close connection between dreams, reveries, and ecstasies on the one hand, and poetic inspiration on the other, has long been realised, but Prescott points out that there are still more intimate ones, such as the unconscious source of both, the relation of them to emotion and instinct, and above all their biological function in securing mental repose by producing an imaginary gratification of repressed desires. The paper, which is seventy pages long, is well worth reading in the original. ERNEST JONES.

FOUR INTERESTING CASES OF EMOTIONAL DREAM-STATE.
(502) **(From the Psychiatrical Wards of the Royal Charité Hospital in Berlin.)** W. J. S. POWERS, *Journ. Nerv. and Ment. Dis.*, June 1912, p. 375.

THE author's main thesis is that such conditions may occur at times apart from the usual basis of hysteria, epilepsy, or alcoholism. He then ascribes them to vaso-motor disturbances induced by abrupt emotional shock. ERNEST JONES.

SOME DREAMS AND THEIR SIGNIFICANCE. Sir G. H. SAVAGE,
(503) *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

THIS is a short paper dealing with the relation of dreams to mental disorder. Dreams may assist in diagnosis, as when the recurrence of some dream, always of the same kind, suggests epilepsy. Dreams are of importance both in relation to the onset of an attack of mental disorder and to recovery from it. One of the surest signs that a melancholic is going to recover is the occurrence of pleasant dreams. The relation of dreams to delusions and hallucinations is dwelt upon. W. BOYD.

PATHOLOGY.

AN INTRODUCTORY HISTOPATHOLOGICAL STUDY OF THE
(504) **PARAPLEXUS IN THE PSYCHOSES.** J. A. F. PFEIFFER, *Amer. Journ. Insanity*, July 1912, p. 169.

THE author gives a general account of both the normal and pathological anatomy of the paraplexus, based on the examination of

fifty-one cases from psychotic patients. He deals especially with hyaline and calcareous degeneration, cyst formation, and vacuolative changes. ERNEST JONES.

CLINICAL NEUROLOGY.

CHVOSTEK'S SIGN AND ITS SIGNIFICANCE IN OLDER CHILDREN.

(505) MURRAY H. BASS, *Amer. Journ. Med. Sci.*, Vol. cxliv., No. 1, July 1912, p. 64.

CHVOSTEK'S sign, or the facial phenomen, is obtained either by tapping with the finger, or a percussion hammer, on the skin over the facial nerve, that is, at a point midway between the zygoma and the angle of the mouth. A lightning-like contraction of the muscles supplied by the facial nerve is seen, the angle of the mouth, the side of the nose, and in marked cases the skin over the inner canthus of the eye and eyebrow displaying a sudden twitching. Chvostek believed this sign to be characteristic of tetany.

The author examined 495 children for this sign and found it present in 16 cases, in none of whom could a positive diagnosis of tetany be made. In an analysis of 31 positive cases, it was found to be commonest in children showing vasomotor irritability and particularly in those suffering from orthostatic albuminuria. Its presence in neurotic children appears to be of much more constancy than an increased patellar reflex. A. NINIAN BRUCE.

A NEW REFLEX OBTAINED FROM THE SOLE OF THE FOOT.

(506) (**Über einen neuen von der Planta pedis auslösbaren Reflex**). JACOBSOHN and CARO, *Neurol. Centralbl.*, April 1, 1912, p. 420.

ON firm rather smart stimulation of the sole of the foot the observers obtained twitching of the lateral part of the quadriceps extensor cruris and of the tensor fasciæ femoris. They found this "new" reflex in 93 out of 100 cases of disease (nature not fully specified).

It is extraordinary that no reference is made to the familiar Brissaud's reflex of the fascia lata. S. A. K. WILSON.

ON BABINSKI'S "INVERSION OF THE RADIAL REFLEX."

(507) SÖDERBERGH, *Neurol. Centralbl.*, April 1, 1912, p. 416.

A CASE of spinal tumour, C1—3, where there was inversion of the radial reflex on the right side. Although at the operation the lesion was found to be well above the level at which, according

to Babinski, the radial reflex inversion shows the lesion to be, the writer supposes that its occurrence is indicative of "Fernwirkung."

S. A. K. WILSON.

INTERMITTENT CLAUDICATION IN THE UPPER EXTREMITIES.

(508) E. M. WILLIAMS, *Journ. Nerv. and Ment. Dis.*, May 1912, p. 306.

A CASE of "dysbasia intermittens angiosclerotica," in a man of 58, is described, the unusual features being the affection of the upper limbs with escape of the lower, and the presence of almost continuous pain.

ERNEST JONES.

A CASE OF JUVENILE TABES WITH AUTOPSY. (Fall von Tabes juvenilis mit anatomischen Befund.)

(509) MAAS, *Neurol. Centralbl.*, March 16, 1912, p. 345.

THE case was that of a man who came under Remak's observation in 1885, at the age of 16, with lightning pains, bladder trouble, Rombergism, optic atrophy, absent knee jerks, etc. His father was a tabetic. The patient lived to the age of 41, dying in November 1910. No particular change was found in the brain: typical tabetic changes were found in the cord, but not of equal intensity throughout.

S. A. K. WILSON.

TABES DORSALIS IN LATE LIFE ARISING FROM HEREDITARY SYPHILIS. (Tabes dorsalis im späteren Alter auf der Basis hereditärer Lues.)

(510) HÖSSLIN, *Neurol. Centralbl.*, Jan. 2, 1912, p. 23.

AN unmarried woman of 52 developed characteristic symptoms of tabes. There was a positive Wassermans reaction. The patient had never had intercourse, and the hymen was intact. Her father had died at the age of 36 with general paralysis, and her mother had had three miscarriages.

S. A. K. WILSON.

THE RESULTS OF SALVARSAN TREATMENT IN TABES. (Über Erfolge der Salvarsanbehandlung bei Tabes.)

(511) CANESTRINI, *Neurol. Centralbl.*, Jan. 2, 1912, p. 13.

IN twenty-two cases of tabes no untoward result followed the injection of salvarsan intravenously: all declared "they felt better in themselves"; their general functional capacity improved: in three cases the deep reflexes returned, in two the condition of sensibility objectively improved: in one the pupil reactions improved. In every case a second injection followed the first (usually 30 cg.) at an interval of a fortnight: in several cases

three injections were given. In a number of cases a diffuse herpes labialis occurred some days after the injection. As bearing on the question of neurotropism, the author remarks that where the syphilitic or parasyphilitic processes were most marked, there after salvarsan a transient intensification of symptoms was occasionally noticeable. S. A. K. WILSON.

A CASE OF RECKLINGHAUSEN'S DISEASE. (Eine Pat. mit
(512) **Recklinghausenschen Krankheit.)** GOTTSTEIN, *Zentralbl. f. Chir.*, 1911, xxxviii., p. 1119.

THE patient was a woman aged 39 in whom the first symptoms had appeared twenty years previously, consisting in pains in the knees and calves, and then in the back. Her growth was retarded, and she gradually developed deformities of the clavicles, vertebral column, left forearms and thigh, with violent pain in the right hip and finally painful nodes on the sternum and shins. The height was only $49\frac{3}{5}$ inches. Microscopically the nodules showed a combination of osteitis fibrosa and giant-cell sarcoma. Gottstein thinks that ætiologically there was a disturbance of internal secretion. The brown coloration of the skin suggested that the suprarenals were affected, but no benefit was derived from adrenalin. J. D. ROLLESTON.

RECKLINGHAUSEN'S DISEASE. (Ziekte van Recklinghausen.)
(513) J. C. B. DE HAAN, *Nederland. Tijdschr. v. Geneesk.*, 1912, i., p. 1492.

THE patient was a deaf and dumb but vigorous shoemaker, who in addition to pigmentation, blue spots and molluscous tumours on the trunk presented a swelling above the right eyelid, hanging down from the edge of the orbit. The father had had a similar swelling over his eye and numerous skin tumours, and one of the patient's sisters had numerous small tumours on her skin. No biopsy. J. D. ROLLESTON.

GENERALISED NEUROFIBROMATOSIS. (Contribution à l'étude
(514) **de la neurofibromatose généralisée.)** A. JULLIEN, *Thèses de Paris*, 1909-10, No. 266.

THIS thesis contains a general consideration of the disease with the histories of four personal cases, in one with necropsy. Another case showed signs of suprarenal insufficiency (melanodermia, pigmentation of the mucosæ, and gastro-intestinal disturbance), and a recurrence *in situ* following operation of a plexiform recurrence of the hypogastrium. A bibliography of the literature from 1814 to 1909 inclusive is appended. J. D. ROLLESTON.

THE BLOOD IN VON RECKLINGHAUSEN'S DISEASE. (Uber
(515) **einen Blutbefund bei der von Recklinghausenschen Krankheit.)**
J. WITTEMANN, *Med. Klinik*, 1911, vii., p. 882.

WITTEMANN examined the blood in five cases of von Recklinghausen's disease, including two rudimentary forms, and found in all a striking increase in the mononuclears (29-52 per cent.) especially in the small mononuclears (21-40 per cent.).

J. D. ROLLESTON.

EXPERIMENTAL POLIOMYELITIS IN MONKEYS. Thirteenth
(516) **note: Survival of the Poliomyelitic Virus in the Stomach and Intestine.** SIMON FLEXNER, PAUL F. CLARK, and A. R. DOCHEZ, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 4, July 27, 1912, p. 273.

SINCE the poliomyelitic virus occurs in the nasal and buccal mucous in human cases of poliomyelitis, it is inevitably taken into the stomach with the swallowed saliva. The virus survives the action of both the gastric and intestinal secretions and persists for a time in these organs. In human beings it leaves the body, in part, with the intestinal discharges, which are therefore a potential source of infection. It remains to be determined whether in the monkey artificially fed with the virus it also passes out in a viable state with the dejecta. A. NINIAN BRUCE.

THE ACTION OF SUBDURAL INJECTIONS OF EPINEPHRIN IN
(517) **EXPERIMENTAL POLIOMYELITIS.** PAUL F. CLARK, *Journ. Amer. Med. Assoc.*, Vol. lix. No. 5, Aug. 3, 1912, p. 367.

THE lesions in the cord in poliomyelitis are surrounded at the periphery by hyperæmic vessels, which should be subject to the influence of the contracting effects of epinephrin. This response of the vessels should bring about a cessation of the exudation through which the dangers arising from the presence of an inflammatory œdema on adjacent nerve cells, themselves not the seat of direct injury, may be averted. If these nerve cells be the phrenic nucleus, such a temporary benefit may become permanent if a natural cessation of the ascending process happened to take place at the same time.

Experiments upon four monkeys are reported in which slight benefit was obtained in the above manner. A. NINIAN BRUCE.

ON A CASE OF MENINGITIS DUE TO BACILLUS TYPHOSUS.
(518) J. F. O'CARROLL and F. C. PURSER, *Med. Press and Circ.*, 1912, i., p. 646, and *Dublin Journ. Med. Sci.*, 1912, ii., p. 10.

A FATAL case in a boy, aged 9 years, in whom the Bacillus typhosus was found in the cerebro-spinal fluid during life and post mortem

in the exudate covering the meninges and convexity of the brain. The cerebro-spinal fluid was very slightly turbid, escaped drop by drop, and contained 1,100 leucocytes per c.mm., two-thirds of which were polynuclears and one-third mononuclears. There were no gastro-intestinal symptoms during life, and only congestion of the intestinal lymphoid tissue, without any ulceration, was found at the necropsy. J. D. ROLLESTON.

A VIRULENT CASE OF EPIDEMIC CEREBROSPINAL MENIN-
(519) **GITIS; FOUR HUNDRED AND TWENTY CUBIC CENTIMETRES OF SERUM ADMINISTERED; RECOVERY.** A. A. HEROLD, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 6. Aug. 10, 1912, p. 444.

THE patient was a school-boy aged 17, who developed undoubted evidence of cerebrospinal meningitis the day following a chill. Lumbar puncture gave a cloudy fluid under great tension from which the intracellular diplococci were obtained. He rapidly became worse but was ultimately discharged cured after the administration intraspinally of the above quantity of antimeningococcic serum in ten doses. A. NINIAN BRUCE.

HEREDO-FAMILIAL DISEASES OF THE NERVOUS SYSTEM IN
(520) **WHICH THE TYPE IS THAT OF DISSIMILAR HEREDITY. (Klinischer Beitrag zu den heredo-familiären Erkrankungen des Nervensystems mit heterologem Vererbungstypus).** V. RAD, *Neurol. Centralb.*, Feb. 15, 1912, p. 211.

THE author describes a family in four of the members of which three different types of hereditary familial nervous disease developed. Two brothers suffered from a spastic spinal paralysis with sensory changes and bladder trouble. In one case the symptoms appeared soon after the age of 3, in the other not till the age of 23. A sister had muscular dystrophy involving the pectorals, trapezius, and serratus magnus. Another brother died at the age of 10½, of an obscure nervous affection in which a choreic syndrome was associated with mental deterioration.
S. A. K. WILSON.

MYOTONIA ATROPHICA. (Zur Kasuistik der atrophischen Myo-
(521) **tonie.)** TETZNER, *Neurol. Centralbl.*, Jan. 16, 1912, p. 89.

A TYPICAL case of this disease in a man of 32: myotonic reaction in the forearms, the muscles of which were wasted; the shoulder girdle, the neck muscles (specially the sternomastoids), and the

face were all involved. The myotonic reaction was present also in the tongue and elsewhere. There is no note of any muscular atrophy in the thighs or legs. S. A. K. WILSON.

A CASE OF MYOSITIS OSSIFICANS TRAUMATICA. ST CLAIR
(522) VANCE, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 4, July 27, 1912, p. 273.

THE patient was a man, aged 28, who was struck on the anterior part of the left thigh, about four inches above the knee by a heavy sheet of iron. He was unable to bend his knee for the next three weeks on account of pain, and then began to notice a hard mass the size of a walnut at the place of injury. Nine weeks later he was admitted to hospital complaining of complete loss of function of his left knee and a growing tumour of the left thigh.

At the operation a bony tumour about five inches long and one inch wide was excised from the crureus muscle and was followed by complete relief. A. NINIAN BRUCE.

MYASTHENIC PARALYSIS AND ITS RELATION TO THE
(523) **GLANDS OF INTERNAL SECRETION. (Über myasthenische Paralyse und ihre Beziehungen zu den Drüsen mit innerer Sekretion).** TOBIAS, *Neurol. Centralbl.* May 1, 1912, p. 551.

AFTER an introduction discussing the views which associate myasthenic paralysis with hyperparathyroidism, tetany being associated with hypoparathyroidism, as well as the more general aspect of the relation of myasthenia to other nervous conditions definitely linked to disease of the glands of internal secretion, the author describes a curious case of myasthenia supervening on exophthalmic goitre, the symptoms of the former becoming predominant as the symptoms of the latter disappeared, while in addition certain signs of tetany developed, more particularly in the hands and arms. S. A. K. WILSON.

DYSBASIA LORDOTICA PROGRESSIVA, DYSTONIA MUSCU-
(524) **LORUM DEFORMANS—TORTIPELVIS.** J. FRAENKEL, *Journ. Nerv. and Ment. Dis.*, June 1912, p. 361.

FRAENKEL describes four cases of Oppenheim's latest disease, the chief features of which are: (1) presence of pelvic deformity, (2) occurrence of tonic and clonic myospasms, chiefly of the pelvic girdle, (3) incidence in young Jews. He disagrees with Oppenheim,

who maintains it is an organic disease of the nervous system, and would group the condition as a tic allied to "essential torticollis"; the name "tortipelvis" is suggested. In spite of this Fraenkel goes on to offer as a pathology of the tic disorders of the epithelial bodies and parathyroid glands, and the influence of their products on calcium metabolism, making no mention of the well-known fact that tics are of mental origin. ERNEST JONES.

BILATERAL SUPRANUCLEAR PALSY OF THE UPPER FACIAL DISTRIBUTION. H. CARNCROSS, *Journ. Nerv. and Ment. Dis.*, May 1912, p. 289. (525)

THE author reports two cases of this nature, which, he says, are the first to be recorded. A clinical account only is given of the first case, one of vascular hemiplegia occurring in a man of 62. The second case, one of cerebral syphilis in a man of 38, came to autopsy, and a full account is given of the anatomical condition. The cells of the facial nuclei were quite unimpaired, and the lesion was confined to the upper motor segment. The author strongly supports Bruce's conclusion that the fibres of the orbicularis, corrugator, and frontalis arise in the seventh nucleus itself, and not in the third. ERNEST JONES.

THREE CASES OF TUMOUR OF THE FRONTAL LOBES. R. T. EDES, *Journ. Nerv. and Ment. Dis.*, June 1912, p. 389. (526)

EDES briefly relates three cases, and discusses in a diffuse way the mental correlative symptoms of frontal lesions. ERNEST JONES.

SARCOMA OF THE CEREBELLUM IN A BOY. A. W. HAWLEY and J. B. MANNING, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 6, Aug. 10, 1912, p. 443. (527)

THE patient was a boy, aged 11, who had had scarlet fever at four years and measles at five years. He had always been well, except for occasional attacks of severe headache and nausea occurring suddenly and without prodronal symptoms since the attack of scarlet fever. These increased in severity, and he had to leave school on account of the constant headache and vomiting.

The pupils were of equal size, dilated and reacted to light. Tonsils enlarged and adenoids present. Tuberculin reaction negative. Knee jerks lively, no Babinski. Double optic neuritis present, operation for decompression refused.

He grew steadily worse, optic atrophy developing. A slight

improvement was noted, coinciding with the relief from pressure due to separation of the coronal suture, but the symptoms soon returned and lasted till death.

A small round-cell sarcoma, the size of a hen's egg, was found involving the right side of the cerebellum, obstructing the aqueduct of Sylvius and dilating the lateral ventricles.

A. NINIAN BRUCE.

A CASE OF AGENESIS OF THE ACCESSORY HYPOPHYSIAL
(528) **SYSTEM WITH NORMAL HYPOPHYSIS CEREBRI AND ACROMEGALIC GIANTISM AND SEXUAL INFANTILISM.**
(Sur un cas d'agénésie du Système hypophysaire accessoire avec hypophyse cérébrale intègre et gigantisme acromégalique avec Infantilisme sexuel.) G. SOTTI and U. SARTESCHI, *Arch. Ital. de Biol.*, Vol. 57, F. 1, June 12, 1912, p. 22.

PATIENT was a man of 76, an acromegalic giant with sexual infantilism, but no psychical defect: abnormal growth began before puberty: he died without appreciable cause. There were the usual skeletal and cutaneous signs of acromegaly. An exhaustive study of all the known sites of accessory hypophysial tissue was negative. The hypophysis, studied by many methods, was normal. The adrenals showed at various points, especially in the spongy zone, small circumscribed hæmorrhagic foci and small-celled infiltration. The pineal body was small, but showed no inflammatory nor regressive changes; its glandular elements throughout were well preserved; its cell-protoplasm was very scanty, spongy, with badly-defined limits; and no fuchsinophile granules were present: its vessels were normal. Testes and epididymis very small, of fleshy colour and consistency; a number of corpora amylacea were found: there was no evidence of spermatogenesis. Interstitial tissue of testes was well preserved. Congenital aplasia of prostate. No changes of any note in nervous system nor other organs. The authors conclude that the acromegalic giantism was due to a primitive alteration, probably congenital, of the accessory hypophysial system; and that the sexual infantilism shows a functional correlation between the hypophysial system and the sexual organs. They make no comment on the interesting fact that the abnormal growth began before puberty. LEONARD J. KIDD.

RIGHT-BRAINEDNESS IN RIGHT-HANDED INDIVIDUALS.
(529) **(Über Rechtshirnigkeit bei Rechtshändern.)** MENDEL, *Neurol. Centralbl.*, February 1, 1912, p. 156.

A WOMAN of 42, definitely right-handed, and with no family history of left-handedness, had a sudden stroke involving the

whole of the left side of the body, with extensor response and ankle clonus on that side. At the same time she became completely aphasic. At the autopsy some seven months later the lesion was found to be an embolic lesion of the right sylvian artery with softening of the third right frontal convolution, the island of Reil, and the upper temporal convolution in part. The left hemisphere was intact, macroscopically and microscopically. In this case the pyramidal tracts were normally crossed: the lesion was in the right hemisphere only: therefore, the sole apparent explanation is that the case is one of right-brainedness in a right-handed patient. It seems to be the first indubitable case of the kind on record. S. A. K. WILSON.

AMAUROTIC FAMILY IDIOCY IN TWIN SISTERS. F. J. BAILDON, (530) *Liverpool Med.-Chirurg. Journ.*, No. 62, July 1912, p. 308.

THIS appears to be the first recorded instance of this disease in twins. Mother of patients was a fair Jewess, perfectly healthy; when 31, in November 1907, gave birth to the twin girls. Her husband, about 50, is a dark-complexioned Jew. Labour was tedious and needed anæsthetics; good recovery. Children were well for about a year; then were too fat, could not hold up their heads properly, were lethargic and apathetic; then blebs and sores came on legs and other parts, and eventually healed slowly. Alteratives were useless. At 18 months weakness had increased greatly; at this time the eyes were examined, as the children appeared to ignore moving objects. This was done by R. J. Hamilton, of Liverpool, who found, and here describes and figures, the typical fundus-changes of the disease in both eyes of both children: he noted also that pupils reacted sluggishly and then only to bright illumination. Further progress of disease was rapid, viz., rapid onset of wasting of limbs and body, increasing weakness, and auditory hyperæsthesia shown by violent convulsive starts and tremors of arms when two coins were clicked together. Shortly before death pains in head and limbs, and bedsores. One child lived 22 months, the other 23 months. (In March 1909 the mother had another child: it is quite healthy.) Baildon has some remarks on the ancestry of the Jews. A photograph is given of the two children in bed. LEONARD J. KIDD.

SENILE RETROBULBAR OPTIC NEURITIS. HIGIER, *Neurol.* (531) *Centralbl.*, Feb. 1, 1912, p. 155.

THE author describes some cases of retrobulbar neuritis in old people, acute at onset, and leading to optic atrophy, uninfluenced

by treatment. The condition is bilateral, and unassociated apparently with other vascular or nervous symptom. Their pathogenesis is unknown. S. A. K. WILSON.

NEURITIS OF THE CRANIAL NERVES, ESPECIALLY THE OCULO-MOTOR, FOLLOWING INJECTIONS OF ARSENO-BENZOL. (Le polinevriti craniche, specialmente oculomotrici, consecutive ad injezioni di arseno-benzolo.) A. ANTONELLI, *Gazz. Internaz. di Med. Chir.*, etc., 1912, p. 553.

(532)

A MAN, aged 39, suffering from secondary syphilis, received two intravenous injections of "606." A few days later he developed left facial paralysis, convergent strabismus from paralysis of the right sixth nerve, right auditory paralysis, and double optic neuritis. Six weeks after the second injection he further developed paralysis of the right third nerve and spinal accessory. Wassermann's reaction in the blood and cerebro-spinal fluid was positive, and cerebro-spinal lymphocytosis was very marked. In spite of further injections of "606," alternating with intramuscular injections of benzoate of mercury, and associated with daily administration of potassium iodide the ptosis and strabismus persisted, the pupils remained sluggish, and there was optic atrophy. Antonelli attributes the polyneuritis to the toxic action of arseno-benzol affecting the cranial nerves, and rendering them a *locus minoris resistentiae* for the syphilitic virus.

J. D. ROLLESTON.

ASPHYGMIA ALTERNANS, A NEW PULSE PHENOMENON OF HYSTERO-NEURASTHENIC ORIGIN. HALBEY, *Neurol. Centralbl*, April 16, 1912, p. 487.

(533)

IN a male patient of 28 with symptoms of hysteria and neurasthenia, it was observed that the right radial pulse gradually weakened and disappeared entirely for a minute, or a minute and a half, while the left radial pulse remained perfectly normal; then as the former gradually became palpable and strong again by successive beats, the left in turn weakened and disappeared entirely for about three quarters of a minute, gradually becoming normal again. The phenomenon was observed usually in the morning, after the patient woke up from sleep, not at any other time. It never was noted that there was simultaneous pulselessness on the two sides. The author has not been able to find any record of any similar case in the literature. He attributes the phenomenon to transient cramp of the vaso-constrictors on the basis of neuras-

thenic exhaustion. The patient showed definite vasomotor irritability in the shape of dermatographia, etc.

S. A. K. WILSON.

SYPHILITIC FACIAL PARALYSIS. CHARLES O. FILES, *N.Y. Med.* (534) *Journ.*, July 20, 1912.

A REPORT of a case of a man, aged 68, suffering from a syphilitic ulcer in the soft palate about mid-way between the front teeth and the uvula, who suddenly developed a complete left facial paralysis of peripheral origin. The ulcer was probably just within or in the immediate vicinity of the stylomastoid foramen, and healed in about three weeks with large doses of potassium iodide, but the muscular power did not return until the end of a year.

A. NINIAN BRUCE.

FACIAL PARALYSIS COMPLICATING SUPPURATIVE OTITIS (535) **MEDIA; ATYPICAL MASTOID OPERATION.** EMIL AMBERG, *N.Y. Med. Journ.*, July 6, 1912, p. 16.

A CASE of a man, aged 46, who was suddenly seized with severe pain in his left ear. On the second day the drum membrane was incised, and on the third day a facial paralysis developed on the left side. Next day a swelling appeared behind the left auricle, followed later by a muco-purulent discharge. A mastoid operation was done, and the paralysis was slowly recovered from.

A. NINIAN BRUCE.

THE ELECTRODIAGNOSIS OF PERIPHERAL FACIAL PARALY- (536) **SIS, WITH REMARKS ON "METAPARALYTIC PSYCHOGENETIC AKINESIS." (Beiträge zur Elektrodiagnostik der peripherischen Gesichtslähmung: gleichzeitig Bemerkungen zur "metaparalytischen psychogenen Akinesie.")** COHN and GATZ-EMANUEL, *Neurol. Centralbl.*, Feb. 1, 1912, p. 147.

IN peripheral nerve palsies there is frequently a disagreement between the degree of functional restitution and the return of normal electrical excitability. There may be functional restitution with defective electrical response, or normal electrical reactions with very imperfect voluntary control. The authors describe a case belonging to the latter category. The patient was a young woman of 20, with right facial palsy of three years' duration. The facial musculature was flaccid and motionless. Electrically, the frontalis and orbicularis oculi did not respond either to faradism

or galvanism, but the whole of the rest of the facial muscles responded normally to very moderate faradic and galvanic currents. In similar cases one of the explanations which has been advanced is that there is loss of motor images and of peripheral sensory stimuli owing to prolonged muscular inactivity; in a sense, then, the loss of movement is functional. Bearing out this view, it often happens that electrical treatment is followed by rapid improvement, the artificial contraction of the musculature reawakening sensory stimuli, and these in their turn reinforcing motor images. The authors think this explanation holds good in their case. They employ the somewhat cumbrous expression of "metaparalytic psychogenic akinesis" to characterise the condition.

Another case is described in this paper where a woman, operated on for a parotid tumour, developed a facial palsy. Four years later there was no functional improvement whatever, yet in certain of the facial muscles the electrical reactions which formerly were typically these of R.D. had become practically normal. A satisfactory explanation of these phenomena is not at present forthcoming. S. A. K. WILSON.

THE RELATION OF AORTITIS TO SYPHILIS, AND THE IMPORTANCE OF ITS RECOGNITION. C. L. CUMMER and R. DEXTER, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 6, Aug. 10, 1912, p. 419.
(537)

FROM 70 to 75 per cent. of lesions of the aorta or aortic valve are syphilitic in origin. Syphilitic aortitis is a definite pathological and clinical manifestation of syphilis, usually coming late after the disappearance of the early manifestations, and following a long period of latency. Aortitis occasionally is associated with luetic cerebro-spinal manifestations. After a diagnosis of aortitis has been made, a Wassermann reaction should be performed and if positive indicates the desirability of urgent mercurial treatment.

A. NINIAN BRUCE.

SPIROCHETES IN THE MOUTH. A. A. THIBAUDEAU, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 6, Aug. 10, 1912, p. 446.
(538)

THE author examined smears from 149 mouths with no history of syphilis, and found that spirochetes closely resembling *Spirochæta pallida* were present in 41 per cent. The possibility of these organisms causing a mistake in diagnosis in a non-syphilitic ulceration or other lesion of the mouth is pointed out.

A. NINIAN BRUCE.

ANGIO-NEUROTIC ŒDEMA CURED AFTER THE ADMINISTRA-
(539) **TION OF SALVARSAN.** C. W. BURR, *Journ. Nerv. and Ment. Dis.*, July 1912, p. 456.

A MAN of 48 was given an injection of salvarsan for a chronic periostitis that had resisted mercurial treatment. He made a good recovery from this, and incidentally ceased to suffer from an angio-neurotic œdema, which had previously been treated with arsenic to no purpose. Burr thinks that the cure of the latter condition was due to the salvarsan, but does not believe that the œdema was syphilitic in nature. ERNEST JONES.

THE ACTION OF SALVARSAN AND NEOSALVARSAN ON THE
(540) **WASSERMANN REACTION.** J. E. R. M'DONAGH, *Brit. Med. Journ.*, June 8, 1912, p. 1287.

AS a rule from three to seven injections of salvarsan are necessary to cure most cases of syphilis. There is no doubt that many cases in the tertiary stage can be cured with neosalvarsan which fail to be cured with salvarsan. The alterations in the Wassermann reaction are most constant, and when tested at short intervals give a safe guide to regulate treatment. The author advises his patients to have a provocative injection of neosalvarsan six months or a year after they have been discharged, and the blood tested forty-eight hours, the seventh, fourteenth, twenty-first, and twenty-eighth day after that injection. All his cases for some months past have had three to nine injections of salvarsan, given at seven to fourteen days' interval, or three to seven injections of neosalvarsan, given at not more than seven days' interval, with not a single bad manifestation or a recurrence of symptoms.
A. NINIAN BRUCE.

CLINICAL AND PATHOLOGICAL EXAMINATION OF A CASE
(541) **OF GENUINE ARGYLL-ROBERTSON PUPIL (WITHOUT SYPHILIS) IN SEVERE CHRONIC ALCOHOLISM. (Klinische und Anatomische Untersuchung eines Falles von Isolierter echter reflektorischer Pupillenstarre ohne Syphilis bei Alcoholismus chronicus gravis.)** NONNE, *Neurol. Centralbl.*, Jan. 2, 1912, p. 6.

THE patient was a man of 51, suffering from severe chronic alcoholism, who, apart from the symptoms of that condition, had a typical double Argyll-Robertson pupil. There was no history of syphilis. On two occasions the Wassermann reaction in the blood was negative: it was also negative in the cerebro-spinal

fluid, and there was no lymphocytosis. The patient died some six weeks later, and of the post-mortem findings the following points are noteworthy: the aorta showed no trace of Heller's aortitis; the pia was slightly œdematous, but otherwise normal; the cerebral convolutions were of normal appearance; there was no ependymal granulation; the intracranial blood vessels were normal. Minute microscopical examination of the cord proved negative. The author admits, however, that the examination of the brain was macroscopical only, although he thinks this unimportant. Two other cases of chronic alcoholism are quoted, each with double Argyll-Robertson pupil; in one of these the pupillary reactions became normal again after some weeks of treatment.

S. A. K. WILSON.

(542) THE CLINICAL INTERPRETATIONS OF THE SEROLOGICAL CONTENT OF THE BLOOD AND CEREBRO-SPINAL FLUID, WITH SOME REFERENCE TO THE CYTOLOGY AND CHEMISTRY OF THE LATTER, IN MENTAL DISEASES. M. J. KARPAS, *Amer. Journ. Insanity*, July 1912, p. 143.

A GENERAL account of a year's work, mainly with the Wassermann and Kaplan (butyric acid and ammonium sulphate) tests. From the conclusions may be abstracted the following:—Of 100 cases of paralysis the Wassermann test was negative in both blood and fluid in only 4; in another 7, however, it was positive in the blood only. The results do not confirm the French teaching that in the last stages of the disease the reaction is positive in the fluid only. Lymphocytosis occurred in 98 per cent. of the present cases, but there was no parallel between the intensity of it and the course of the disease. Plant's formula for cerebral syphilis was confirmed. In epileptic psychoses as a rule neither the blood nor the fluid reveals abnormal constituents (except when syphilis is present); the same is true of all other psychoses.

ERNEST JONES.

(543) ERYTHROMELALGIA. Report of a case presenting peripheral vaso-motor disturbances in the hands and feet for twelve years, reaching a climax in eight years, with recovery following treatment by suprarenal substance. GEORGE A. MOLEEN, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 7, Aug. 17, 1912, p. 532.

THE patient was a man, aged 70. About fourteen years ago he felt a prickling sensation with swelling at tip of left forefinger and thumb. Recurred at varying periods during next two years. Then noticed pain in outer side of right foot, which involved the

whole foot, and became constant and severe with swelling and redness. This was always relieved by elevating the foot. Remissions of from a few days to several months during the last twelve years. In 1900 attacks of transitory blindness with weakening of the knees were noticed. During the last two years the pain in his feet had confined him to bed, as lowering his legs immediately brought on the pain. All deep reflexes present and normal. No clonus and no Babinski. Tactile sensibility increased. Pupils equal and respond to light and to accommodation.

Patient was given 5 grain tabloids of suprarenal gland with intervals of three weeks, and a rubber bandage was applied to the limbs. Progressive improvement took place, and the paroxysms remained in abeyance. A threatened gangrenous spot was prevented by the use of hot foot baths. In January 1912, he had complete relief from pain in the feet when dependent, and was able to walk about the house as much as his general weakness would permit. It is suggested that the internal secretions may possibly control the vaso-dilatation in such cases.

A. NINIAN BRUCE.

UNILATERAL EXOPHTHALMOS IN GRAVES' DISEASE. (De l'Exophtalmie Unilatérale dans la Maladie de Basedow.) G. WORMS and A. HAMANT, *Gaz. d. hôp.*, 1912, lxxxv., p. 1039.

(544)

A RECORD of two cases with review of the literature.

Case 1.—Woman, aged 31, in whom marked left exophthalmos was associated with other symptoms of Graves' disease. The left lobe only of the thyroid was enlarged. Left thyroidectomy was performed. Three months later the exophthalmos remained the same, though the other symptoms had improved.

Case 2.—Woman, aged 56, with marked right exophthalmos, paroxysmal tachycardia, fine tremor of hands, gigantism, and ill-developed acromegaly.

The writers have collected 112 cases from literature. In 17 the goitre was on the same side as the exophthalmos, in 6 on the opposite side, and in 13 was absent or barely appreciable.

J. D. ROLLESTON.

FACTORS OF SAFETY IN OPERATING FOR EXOPHTHALMIC GOITER. CHARLES H. MAYO, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 1, July 6, 1912, p. 26.

(545)

THE author reports a consecutive series of 278 cases of exophthalmic goitre operated upon within the past year without a death. This is the result of taking advantage of the so-called

"factors of safety" in the treatment, preparation, and operation upon these patients. Operation should not be attempted during periods of exacerbation or excessive activity of the disease, nor during periods of gastric crises or acute delirium, nor if the dilatation of the heart exceed one inch. Double ligation is of doubtful value. Serious risks are treated by a single ligation of the vessels at the upper left pole. The reaction is about three-fourths as severe as from a double ligation. If the reaction be very severe, a second ligation of the right upper pole is made a week later. As compared with the first ligation, the reaction following this one is slight. If the reaction be not severe, at the second operation the right lobe, isthmus, and possibly a portion of the left lobe is removed. Of the above 278 cases, 105 were cases of single and 13 of double ligation. Ether, preceded by atropin and morphin, is the anæsthetic of choice for double ligations and thyroidectomy. If there be extreme nervousness, scopolamin is used, and local anæsthesia is employed if cardiac or renal complications are present. A. NINIAN BRUCE.

PSYCHIATRY.

ALZHEIMER'S DISEASE. (Senium Præcox: The Report of a Case, and Review of Published Cases.) S. C. FULLER, *Journ. Nerv. and Ment. Dis.*, July 1912, p. 440. (546)

A FAIRLY typical case of Alzheimer's disease, in a man of 56, is described, with a good amount of the microscopic findings. The author then reviews chronologically the previously recorded cases. The article is to be continued. ERNEST JONES.

FURTHER OBSERVATIONS ON ALZHEIMER'S DISEASE. S. C. FULLER and H. I. KLOPP, *Amer. Journ. Insanity*, July 1912, p. 17. (547)

THE paper is in essence a review of one recently published by Fuller in the *Journ. of Nerv. and Ment. Dis.*, together with the report of an additional case, in a woman of 56. The microscopic findings in this were by no means typical, particularly as regards the neuro-fibril degeneration, and many would be inclined to class the case as ordinary senile dementia. ERNEST JONES.

A NOTE ON THE PROGNOSTIC VALUE OF HALLUCINATIONS IN THE MANIAC-DEPRESSIVE PSYCHOSES. E. M. PEASE, *Amer. Journ. Insanity*, July 1912, p. 119. (548)

FROM the inquiry it would appear that patients with hallucinations tend to recover from the attack slightly better, but to show a

slightly greater liability to future attacks, than those without them. The difference is so slight, however, that it cannot be relied on, certainly not without more extended investigations.

ERNEST JONES.

ASSOCIATION IN FEEBLE-MINDED AND DELINQUENT CHILDREN. (549) F. C. EASTMAN and A. J. ROSANOFF, *Amer. Journ. Insanity*, July 1912, p. 125.

TWO hundred and fifty-three subjects were examined, and the results compared with standards obtained from the normal by Kent and Rosanoff. It was found that the test is an aid in the diagnosis of feeble-mindedness, arrested mental development presenting fairly definite associational tendencies which are characterised mainly by: failures of reaction, excess of non-specific reactions (mostly predicate), and certain types of individual reactions (repetition, occurrence of unusual and far-fetched responses, and so on).

ERNEST JONES.

THE BIOGRAPHY OF A PATIENT WITH PARANOID DEMENTIA PRÆCOX. (550) C. W. BURR, *Amer. Journ. Insanity*, July 1912, p. 107.

AN interestingly written description of a typical case of this nature.

ERNEST JONES.

SOME PROBLEMS IN THE STUDY OF HEREDITY IN MENTAL DISEASES. (551) H. A. COTTON, *Amer. Journ. Insanity*, July 1912, p. 31.

THIS long paper, which does not lend itself to abstracting, is an exceedingly interesting account of the modern work in the field of human heredity, and particularly the application by Davenport of Mendelian principles to the problems of psychiatry.

ERNEST JONES.

THE PHYSICAL BASIS OF MENTAL DISEASE. IVY MACKENZIE, (552) *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

THIS paper is a general consideration of the relation of mental states to the underlying brain conditions, with a fuller discussion of two diseases—dementia præcox and general paralysis. The antithesis between these two diseases is pointed out: in dementia præcox the active stage is short and often acute, after which the patient settles down to the life of the asylum, cured so far as the somatic ailment is concerned; general paralysis, on the other

hand, is a chronic disease progressing towards and eventually ending in death. Two cases of dementia præcox in the acute stage are described, in which there were marked changes in the cerebro-spinal fluid; the albumen and globulin were increased, and there was a marked lymphocytosis. W. BOYD.

ABNORMAL DEVELOPMENT OF SCALP. T. W. M'DOWALL and
(553) COLIN M'DOWALL, *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

A FULL account is first given of previous writings on this subject, which are for the most part from the pen of Italian authors. This includes a summary of three cases reported by Bravetta. A description is given of a case observed by the authors, accompanied by an excellent photograph. Another case, also known to the authors, is mentioned, which is of particular interest in that it is the first case observed in a woman, the ordinary arrangement of the hair in women usually tending to completely conceal the condition.

The significance of the condition is then fully discussed, and various explanations considered. The authors consider that in order to get at the root of the matter one must turn to the cleavage lines of the skin or the lines of Langer. A description of these lines is given, especially with regard to their distribution in the head and neck, and it is pointed out that they closely correspond in direction with the folds present in cases of abnormal development of the scalp. It is probable, therefore, that these folds are merely an exaggeration of the lines of cleavage which are normally present in the skin. The authors state that, although well-marked examples of abnormal development of the scalp are of extreme rarity, yet in the scalps and foreheads of ordinary people all the furrows can be demonstrated in an elementary condition, slight pressure at the temples being necessary in many cases. A diagram of the lines of Langer in the head and neck is given. W. BOYD.

THE VARIETIES OF DEMENTIA, AND THE QUESTION OF
(554) **DEMENTIA IN RELATION TO RESPONSIBILITY.** ROBERT JONES, *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

THIS is a paper opening a discussion on the subject indicated by the title. The points raised were: (1) the actual meaning of the term "dementia," and the varieties met with as primary conditions; (2) the line of demarcation between responsibility and irresponsibility; (3) the question whether there can exist such a

condition as partial against complete insanity, and therefore partial as contrasted with complete responsibility. The discussion which followed was taken part in by many members of the Medico-Psychological Association, and every aspect of the subject was presented. W. BOYD.

THE PRODUCTION OF LEUCOCYTOSIS IN THE TREATMENT OF MENTAL DISEASES. (555) R. DODS BROWN and DONALD ROSS *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

THE paper opens with an historical review of the subject, the various methods in which leucocytosis has been produced in the past being considered in turn. The most remarkable results were those of Donath, who obtained ten complete and five partial recoveries out of twenty-one cases of general paralysis. He used a 2 per cent. solution of sodium nucleinate, and injected 50 to 100 c.c. every five or seven days. The authors used the metallic ferment, argentum colloidale, in doses of 5 to 10 c.c., and a 5 per cent. solution of nucleic acid in doses increasing from 15 to 60 minims. Both of these preparations were injected subcutaneously every second, third, or fourth day. The treatment was continued for from three to five weeks. The maximum leucocytosis produced was 28,400. Nine cases were treated, five of acute delirious insanity, two of melancholia, one of dementia præcox, and one of general paralysis. In most of the cases only nucleic acid was employed, but the most successful case was one of acute delirious insanity in which both the colloid silver and nucleic acid were used. Within ten days the mental confusion and excitement passed away, and shortly afterwards he was convalescent. Of the nine cases, one was cured, four were improved, in three there was no change, and one died, this last being the general paralytic who succumbed to a severe seizure. In all cases a leucocytosis and a slight rise of temperature followed the injection of the drug. The paper closes with a full and useful bibliography. W. BOYD.

AN INVESTIGATION AS TO THE THERAPEUTIC VALUE OF THYROID FEEDING IN MENTAL DISEASES. (556) RICHARD EAGER, *Journ. Ment. Sci.*, Vol. lviii., No. 242, July 1912.

THE method adopted was that recommended by Macphail and Bruce, in which 60 gr. of thyroid extract a day are given in three doses. The treatment extended over fourteen days in most cases, but in a few instances it had to be stopped. In the majority of

cases a careful urinary examination was made, including an estimation of the percentage of urea. The results are embodied in the form of a table. Charts are given illustrative of typical cases, and tables summarising the result of the thyroid feeding. The author concludes that the most favourable cases for the treatment are those of stupor or melancholia occurring in adolescents. Cases of dementia præcox did not respond at all. An important fact is that the recovery rate falls abruptly after the age of thirty-five. The author considers that the treatment does not act by producing a toxæmia, seeing that it fails to produce benefit at or after the climacteric, but that it stimulates some internal secretion, in all probability that of the reproductive organs. W. BOYD.

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Flexner, Simon, Clark, Paul F., and Dochez, A. R. "Experimental Poliomyelitis in Monkeys. Thirteenth note: Survival of the Poliomyelitic Virus in the Stomach and Intestine" (*Journ. Amer. Med. Assoc.*, Vol. lix., July 27, 1912).

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"Transactions of the Psycho-Medical Society," Vol. iii., Part. iii., 1912.

—*Freud's Theory of Dreams*, M. D. Eder.

Review

of

Neurology and Psychiatry

Original Articles

A CASE OF DISSEMINATED SCLEROSIS, WITH HYDROMYELIA, INTERSTITIAL PERIPHERAL NEURITIS, AND PATHOLOGICAL CHANGES IN THE POSTERIOR ROOT GANGLIA.

By MADGE E. ROBERTSON, M.B., Ch.B.,
Assistant Pathologist, Glasgow Royal Infirmary.
(*From the Pathological Institute, Glasgow Royal Infirmary.*)

(Plates 39-40.)

THIS case is of interest on account of the hydromyelia present, the marked interstitial neuritis found in the peripheral nerves examined, and the changes in the posterior root ganglia, which suggested a chronic inflammatory condition.

The patient, a woman of 29, who had been a maidservant, was admitted to the wards of Dr. W. K. Hunter in the Glasgow Royal Infirmary on the 21st September 1910. There was a history of typhoid fever about six years previous to this time, after which the patient said she had never felt thoroughly well.

The first symptoms of disease of the nervous system were noted four years before coming into hospital, when the patient began to have a feeling of "needles and pins" in her feet and in her right hand and arm. There was also stiffness and weakness of the legs which increased gradually until in about a month the patient could not walk. She had sometimes retention of urine and constipation. She was in bed at this time for a month, and then

her symptoms gradually passed off, so that in two and a half months' time she seemed to have completely recovered. She was well for about five months, then symptoms of paralysis returned, and soon she was only able to walk with the aid of sticks. She remained in a condition of this sort, sometimes a little better, sometimes rather worse, until the time of her admission to hospital.

Previous Health.—She had had scarlet fever and typhoid. There was no history of syphilis.

Family History.—None of the members of her family had suffered from nervous disease.

Her *social conditions* were fairly good—she got plenty of good food, but her work was hard, and she had to be on her feet all day.

On admission she was fairly well nourished, and of a somewhat high-coloured complexion. Her pupils were equal, and reacted normally to light and for accommodation. There was no nystagmus or paralysis of ocular muscles, and vision was quite good. There was no disturbance of speech. All the movements of the facial muscles could be efficiently performed. In the arms the muscular power was good, and there was no difficulty in movement. There was adductor rigidity of the legs, and very decided loss of muscular power—more marked in the left than in the right leg. It was with difficulty that the patient could lift her heels off the ground, and she could not flex her left knee against resistance. She could not walk without the aid of sticks, and her gait was typically spastic. The arm jerks were present, but were not exaggerated. The knee jerks were very active. Ankle clonus was obtained on the left but not on the right side. Babinski's sign was present in both feet. There was a slight tremor of the hands. This was rapid and of small amplitude, and was not increased by purposive movement, the patient being able to do fine crochet work until a very few weeks before her death. She complained of a feeling of tightness round the waist, but no other disturbances of sensation were made out. She had no bladder symptoms, and her bowels moved regularly and naturally.

For a month after admission there was little change in the patient's condition, then impairment of the sense of temperature over the inner side of the left foot and leg about halfway to the knee, and over the right foot and ankle, was noted. A little later there was definite anæsthesia of both feet and legs about halfway to the knee, and impairment of sensation over the outer side of

the upper part of the legs and the thighs. Loss of power in the legs became more marked, and the patient was confined entirely to bed. Occasionally there was some slurring of speech, but this was only temporary. Once incontinence of urine and fæces was noted, lasting for a day or two.

On the 21st November a boil appeared above the right buttock, and within the next few days a bedsore developed here. Patient vomited frequently and her temperature rose, varying between 101-5° and 103°. She had incontinence of urine for two or three days, then retention and also constipation.

On the 11th December blood appeared in the urine, and the patient died two days later.

At the post-mortem examination, the body was found to be somewhat wasted. There were several deep bedsores in the sacral region. The heart was rather large and flabby, with slight hypertrophy of the right ventricle—otherwise it was healthy. The lungs were a little atrophied. There was an old adhesion over the upper part of the left. The liver showed cloudy swelling and the gall bladder was full of white facetted stones. The spleen was rather large and soft. The kidneys were very large and soft, and there was a well-marked septic pyelitis on both sides.

Nervous System.—No areas of sclerosis could be made out on external examination of the brain and cord. The brain was put into formalin to harden, and on section later only one very small patch of sclerosis about $\frac{1}{8}$ in. in diameter was observed. It was in the left hemisphere in the white matter just posterior to the optic thalamus. The pons, medulla and cord were sliced whilst still fresh, and in the cord irregular sclerotic areas were found throughout. Some were white and firm, others greyish and rather soft, especially in the dorsal region. No patches of sclerosis were made out macroscopically in the pons or medulla. A little above the middle of the pons there was a small area of softening on the right side about the middle of the ventral portion.

In the lower cervical and upper dorsal regions of the cord there was marked hydromyelia, the central canal being much dilated. Microscopical examination showed the cavity to be only partially lined with epithelium. Its walls were formed of neuroglial tissue. Portions from the cerebral motor areas, basal ganglia, and cerebellum were examined microscopically, and only the small patch already referred to showed sclerosis.

Sections taken through the middle of the pons and stained by the Weigert-Pal method showed a slightly sclerosed area near the ventral aspect on the left side, and a patch of very marked sclerosis at the upper and lateral margin on the right.

In sections through the medulla at the level of the calamus scriptorius the pyramidal bundles on both sides seemed a little paler than normal, and there was a definite small patch of sclerosis on either side of the median line on the dorsal aspect. Portions of the cord at different levels (cervical, dorsal, and lumbar) were stained by the Weigert-Pal and Marchi methods. Some also were stained with hæmalum and eosin, Van Gieson's stain, iron hæmatoxylin and toluidin blue (for Nissl's granules).

The sections stained by the Weigert-Pal method showed, in the cervical region (sixth and seventh segments) absence of myelinated fibres on the right side, with the exception of a few in the anterior basis bundle, and a few in the posterior part of the cord at the periphery extending from the posterior root to the median fissure. The tissue round the central canal was sclerosed. On the left side the most anterior part of the anterior basis bundle and direct pyramidal tract was quite devoid of myelinated fibres, a large portion of the lateral basis bundle and lateral limiting zone was sclerosed, the sclerosis extending laterally out to the periphery and including Gower's tract. There was also a good deal of sclerosis in the pyramidal pathway, but many myelinated fibres were still present here. The greater part of the left column of Goll was sclerosed, while that of Burdach had almost entirely escaped.

In the dorsal region (eighth segment) only the peripheral parts of the columns of Goll and Burdach, a very small portion at the periphery in the antero-lateral part of the cord on both sides, and a few fibres in the immediate neighbourhood of the posterior root on one side showed myelin sheaths—all the rest was densely sclerosed.

In the lumbar region (second segment) there was a small area of sclerosis on the left side, involving part of the crossed pyramidal pathway, and a much larger area on the right side involving most of the white matter in front of the posterior root. There was also slight sclerosis of the peripheral parts of the columns of Goll and Burdach on both sides. In none of the sections examined was there any sclerosis that could with certainty be attributed to secondary degeneration. Sections were stained for axis cylinders

FIG. 1.—Cord—cervical region.

FIG. 2.—Cord—dorsal region—almost entirely sclerosed.

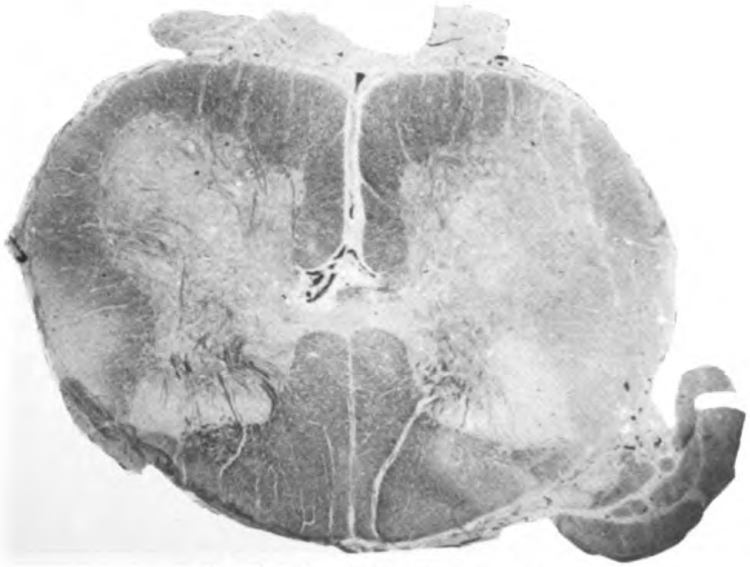

FIG. 3.—Cord—lumbar region.

by the Bielschowsky method, but the staining was not successful; probably because the tissue had been kept rather long in formalin before this method of examination was tried.

In the sections stained by Marchi's method the sclerosed patches showed no blackening—apparently because the myelin sheaths had been completely destroyed and replaced by neuroglial tissue. Throughout the rest of the cord there was a slight patchy scattered degeneration, not corresponding to any particular nerve tracts. In sections stained with hæmalum and eosin, and with Van Gieson's stain, the general appearance was that of a close feltwork of somewhat granular neuroglial tissue—densest about the central canal and in the immediate neighbourhood of vessels—with ill-stained nerve fibres scattered throughout, in some places very sparingly.

Portions of the anterior and posterior nerve roots cut with the cord appeared normal. The meninges seemed normal. The vessels were not unduly thick, and did not seem to have undergone any hyaline change. A fair number of cells were seen in the adventitia of the vessels—some of them plasma cells, others with small, round darkly staining nuclei, and practically no visible cell body—none in the space between the adventitia and the nerve tissue proper. There were very numerous amyloid bodies, especially in the dorsal and lumbar segments, congregated chiefly round the periphery and in the posterior columns about the fibres of the posterior nerve roots.

Sections stained with iron hæmatoxylin brought out very clearly the arrangement of short wavy fibres of which the sclerosed parts of the cord were in great part composed. These were seen to radiate out in a peculiar waved manner—especially from the perivascular spaces. This was most noticeable in the dorsal region.

In sections stained with toluidin blue to demonstrate fine changes in the nerve cells, very little abnormality could be made out. There was perhaps an excessive amount of yellow pigment present in many of the cells, sometimes filling up quite one half of the cell; and in the lumbar region some of the cells stained rather darkly and diffusely, and had lost their processes. In some of the sections examined from the mid-dorsal region there were very few cells present, and those there were, were heavily pigmented or else stained darkly. In one section there were a

number of cells in the intermedio-lateral group which seemed definitely chromatolysed, only a narrow rim of granules being left round the periphery of the cells.

Posterior Root Ganglia.—The ganglia examined were the third and fourth lumbar on each side. The most noticeable feature was the number of nuclei, with no visible cell bodies around them, in the connective tissue (which was increased in amount) and clustered around the ganglion cells—in some instances apparently invading them, as the nuclei were to be seen lying in or upon the nerve cells. The cells thus invaded usually stained very faintly and had an irregular and broken-down appearance. Sometimes there was practically no trace of nerve cell left, only a little clump of nuclei. Some of the nuclei were small, round, and deeply staining—others were larger, paler, and more oval, and showed fine granules, whilst others again were thin and spindle-shaped. All the varieties seemed to take part in the invasion of the ganglion cells. The small round ones and the spindle-shaped variety were apparently proliferated capsule cells—the origin of the larger, paler ones was not clear.

There was a fair amount of pigmentation (green or yellow) of the ganglion cells, and in some the Nissl granules were not well defined, but the majority (save for those overrun by invading nuclei) looked healthy. The vessels were a little dilated and were full of blood. An occasional little clump of polymorphonuclear leucocytes was seen lying apparently either in a capillary, or, more probably, in a lymph space, since no red corpuscles were to be seen amongst them. Numerous large mast cells were to be seen scattered throughout the ganglion.

Peripheral Nerves.—Those examined (lumbo-sacral cord, sciatic, internal and external popliteal, anterior and posterior tibial of the left side, and some nerve roots of the cauda equina on both sides) showed for the most part a marked degree of interstitial neuritis.

The lumbo-sacral cord and the cauda-equina roots showed comparatively little abnormality, whilst in the sciatic, external and internal popliteal and posterior tibial (especially the posterior tibial) there was a well-marked interstitial neuritis. The nerve bundles were shrunken and distorted, and were outlined by a thick line of connective tissue. The connective tissue between the nerve bundles was increased in amount, and there was slight increase also between the individual fibres in the bundles them-

selves. The axis cylinders of the surviving fibres, however, and in most instances their myelin sheaths, even in much altered bundles, looked healthy, although the number of fibres was decreased.

Sections stained by Marchi's method showed nothing of note, any degenerated fibres having apparently disappeared and been replaced by connective tissue. Nothing in the nature of a cellular reaction was observed round the vessels.

The absence of some of the characteristic features of disseminated sclerosis in this case, such as nystagmus, scanning speech, intention tremor, and the usual rather exalted emotional condition, is no doubt to be explained by the fact that, so far as could be made out, sclerosis had confined itself chiefly to the cord, the medulla and pons being only slightly affected, and the cerebrum and cerebellum scarcely at all.

The presence of a hydromyelia is an interesting feature of the case, in view of the theory that disseminated sclerosis is really a multiple gliosis depending on congenital influences (Strümpell). The cavity in the cord would then be of the nature of those found in syringomyelia, as was suggested certainly by its histological appearances. But cavity formation might as readily occur in glial tissue, formed as a result of chronic irritation, as in that resulting from some congenital abnormality, and the well-marked interstitial peripheral neuritis would seem to lend support rather to the view of the chronic toxæmic nature of the disease. The appearances of the posterior root ganglia, which seemed those of chronic irritation, would also accord with this view, as would the slight cellular reaction observed in the adventitia of the vessels. The fine tremor of the hands, not in this case an intention tremor, might also be toxic in origin, as in alcoholic, arsenical, or other chemical poisoning.

Some of the evanescent sensory symptoms might be explained by the action of toxin, either on the cells of the posterior root ganglia (causing irritation with chromatolysis, from which the cell would shortly recover), or on the peripheral sensory nerve fibres.

Temporary motor symptoms could be explained in a similar way, the toxin acting in this case on the cells of the anterior horns or the peripheral motor fibres. Symptoms would be most marked when there had been an accumulation of toxin from some cause

such as defective elimination, or when the resistance of the organism was low, as in chill or overwork.

There does not seem much in this case to guide one as to whether—if this disease is really toxic in nature—the toxin is to be found chiefly in the blood or in the lymph and cerebro-spinal fluid of the nervous system.

The walls of the vessels were healthy in appearance, there was no thickening or hyaline change in them, and such cells as were found round them were more suggestive of cells resulting from tissue reaction than of exudate cells from blood vessels.

Since the lymph channels of the spinal cord have been shown to run in the adventitia of the vessels (Dr. Bruce, Drs. Orr and Rows), the presence of a cellular reaction here, and the fact that the areas of sclerosis seemed often densest around the perivascular spaces and that the fibres of which the sclerotic areas were composed seemed to radiate out from them, could be accounted for either by toxin in the cerebro-spinal fluid or by toxin in the blood.

Sclerosis was marked, in most of the sections, round the central canal, a fact a little in favour of the idea that the cerebro-spinal fluid might contain the toxin.

The papers of Drs. Orr and Rows on the paths of toxins in the peripheral nerves, and the infection of the spinal cord by way of them (*Review of Neurology*, 1907 and 1910), were of interest in connection with the peripheral neuritis found in this case, suggesting the possibility of sclerotic patches in the cord arising as a result of toxins travelling up the nerves, but to come to any conclusion on this point one would require to make a much more extensive examination of the peripheral nerves and the relation of sclerotic patches to them than was done here.

Cellular reaction round vessels was perhaps more noticeable in the nerve root areas of the cord than elsewhere, but the nerves themselves showed nothing in the way of reaction round vessels, only increase of fibrous tissue between the nerve bundles.

SUMMARY.—(1) The disease originated apparently in relationship to an attack of typhoid fever.

(2) Some of the characteristic features of disseminated sclerosis, such as nystagmus, intention tremor, &c., were not present, owing no doubt to the fact that the sclerotic patches were confined almost entirely to the cord.

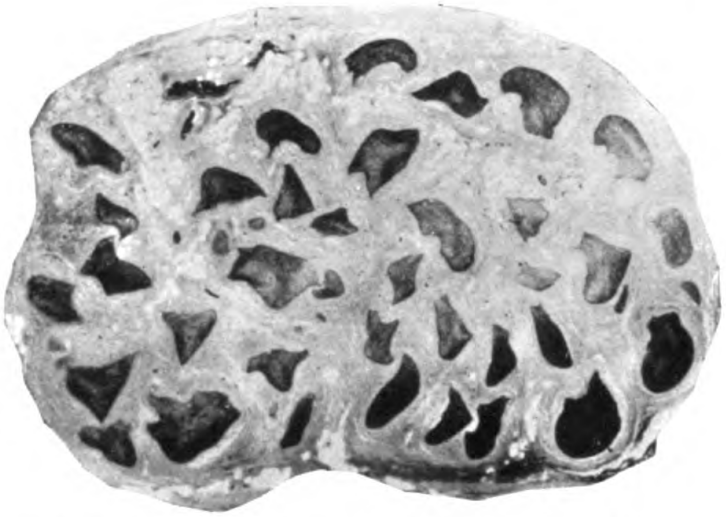

FIG. 4.—Posterior tibial nerve, showing distortion of the nerve bundles and increase of fibrous tissue between them.

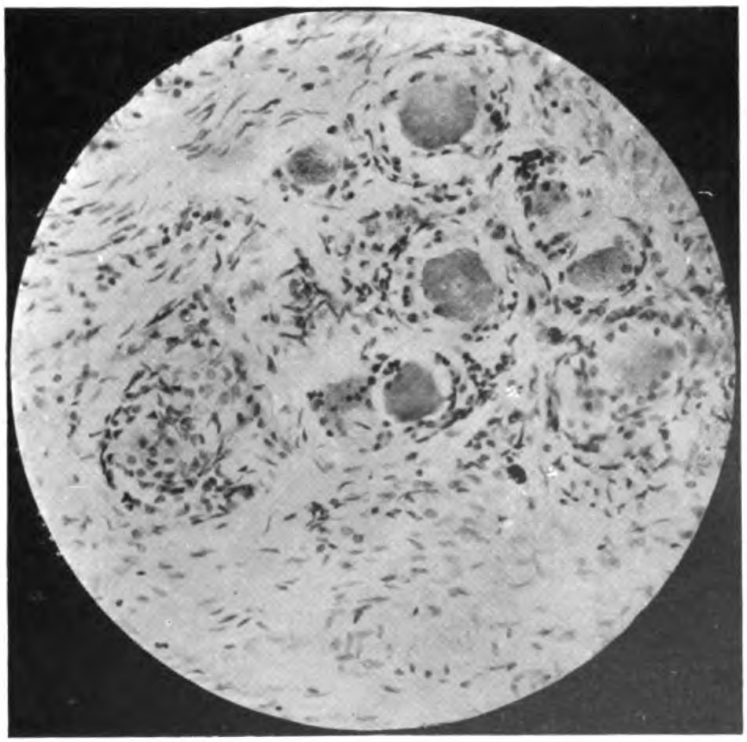

FIG. 5.—Posterior root ganglion (lumbar), showing marked cellularity of the connective tissue, and overrunning of nerve cells by proliferated capsule cells. Some of the nerve cells show degenerative changes. The very darkly staining bodies to be seen here and there in the connective tissue are mast cells.

(3) There was hydromyelia in the lower cervical and upper dorsal part of the cord.

(4) There was a well-marked interstitial neuritis in those of the nerves examined, and changes suggesting a chronic inflammatory condition in the posterior root ganglia.

(5) There were no degenerative changes in the walls of vessels, and such cells as were present round the vessels seemed to be the result of tissue reaction rather than exudate.

I am indebted to Dr. W. K. Hunter for permission to publish this case, and to Dr. J. H. Teacher and Dr. Hunter for their kind assistance in the preparation of this paper.

AN EXPLANATION OF THE ERUPTION IN HERPES ZOSTER.

By A. NINIAN BRUCE, Edinburgh.

A SHORT time ago[1] I recorded a number of experiments upon sensory nerves which I had carried out in Prof. Hans Meyer's laboratory in Vienna. These experiments were performed with a view of determining how the mechanism by which the dilatation of the vessels, which occurs in the initial stages of the reactions of the tissues to an irritant, is produced. It was found that if the eye were rendered completely insensitive by means of a local anæsthetic, the application of an irritant was not followed by the usual dilatation of the vessels. From this it was deduced that we must be dealing with a nervous reflex, the reflex path consisting of an afferent sensory fibre and an efferent vaso-dilator fibre. If the terminations of the sensory fibres be paralysed with a local anæsthetic, this reflex path is interrupted, and the dilatation of the vessels does not take place.

I then showed that this reflex was neither cerebral nor spinal, since total section of the spinal cord and section of the posterior roots *central* to the posterior root ganglia does not interrupt the reflex path.

Section of the opthalmic division of the fifth nerve (*i.e.*, peripheral to the Gasserian ganglion) also does not prevent this reflex dilatation of the blood-vessels provided that the irritant be

[1] *Archiv. f. Exper. Path. u. Pharmak.*, 1910, Bd. 63, s. 424.

applied before the peripheral divided portion of the nerve have time to degenerate. If, however, eight or ten days be allowed to elapse after the section of the nerve, the peripheral part of the fibre will have undergone degeneration, and then the application of an irritant is not followed by any of the usual vascular changes, *i.e.*, there is no dilatation of the vessels, such as is observed under normal conditions.

Bayliss (*Journ. Physiol.*, 1901, xxvi.) has pointed out that if the posterior roots be divided centrally to the posterior root ganglia, stimulation of the peripheral cut end produces dilatation of the vessels in the limb of the same side. The fibres which conduct these impulses do not pass into the sympathetic chain. They do not degenerate when cut between the spinal cord and the posterior root ganglion, and hence they are not spinal afferent fibres, but they do degenerate if the posterior root ganglia be extirpated. "They are, in fact, identical with the ordinary afferent posterior root fibres," and Bayliss suggests the name "anti-dromic" for the process by which nerve fibres convey impulses in a direction contrary to that assumed by the Bell-Majendi law, when such impulses produce effects in the organs at the origin of such fibres, *e.g.*, when afferent fibres excited at their ends in the central nervous system produce vascular dilatation at their peripheral ends in the tissues of the body. These posterior root fibres must therefore be capable of carrying impulses in both directions, afferent sensory impulses from the periphery centralwards and efferent vaso-dilator impulses from the central nervous system peripheralwards; and Bayliss further points out that there is no evidence that the limbs receive vaso-dilator fibres from any other source than the above named posterior roots.

The above experiments of mine throw considerable light upon these experiments of Bayliss, since we learn now that these sensory fibres must bifurcate at their extremities at the periphery of the body, one limb of this bifurcation passing to end in the sensory end-organs, etc., in the skin; and the other limb passing to end in the vessels. The former carries sensory impulses centralwards, the latter vaso-dilator impulses peripheralwards; and the common stem carries impulses, therefore, in both an ascending and descending direction.

The dilatation of the vessels which is found in the initial stages of inflammation is the result of a nervous reflex which passes up

one branch of this bifurcation and down the other. It is thus an axon reflex, similar to those described by Langley (*Journ. Physiol.*, 1900, xxv., p. 364) in the sympathetic system. Such a reflex will not be influenced by section of a sensory nerve peripherally to its ganglion of origin unless the peripheral portion of the fibre be degenerated; if it be degenerated the reflex path is interrupted and the dilatation of the vessels does not take place. Similarly, a local anæsthetic, by paralysing the terminations of the sensory fibres prevents this vascular dilatation since it prevents the stimulus from passing up the sensory fibre (*v. Quart. Journ. Exper. Physiol.*, Vol. VI., No. 1).

My purpose in this paper is to draw attention to the fact that the well-known clinical symptoms of herpes zoster may be explained by the above observations.

The peculiar distribution of the eruption in herpes zoster was noticed at an early date. Its pathology has been very carefully studied by Head and Campbell (*Brain*, 1900, xxiii., p. 353) and others. This eruption in herpes zoster is characterised by its nervous distribution. Head and Campbell examined the posterior root ganglia corresponding to the distribution of certain sensory nerves in twenty cases of herpes zoster, and found that in all these cases there was some lesion present in the posterior root ganglia of the affected nerves, often in the form of a hæmorrhage. They showed that the disease is not of the nature of a bacterial infection, since the contents of the vesicles are sterile, unless secondarily infected. The results of these lesions which they found in the posterior ganglia is to cause an intense irritation of the cells of the ganglia. They consider that the trophic disturbances of the skin is an extreme form of activity resulting from intense irritation of these cells which normally subserve the function of pain, and more particularly that form of pain produced by afferent visceral impulses, and that it is not necessary to imagine that the eruption is produced by disturbance of special trophic nerves.

Herpes zoster is to be regarded as an acute specific disease of the central nervous system. The eruption most commonly makes its appearance on the third or fourth day, and it is often possible to map out the area subsequently occupied by the eruption by means of the hyperalgesia that is present. This hyperalgesia is followed by erythema and on this erythematous surface, vesicles appear. Head and Campbell compare herpes zoster to acute

anterior poliomyelitis, and the late Dr. Alexander Bruce was also inclined to regard the condition as a posterior poliomyelitis (*Review of Neurol. and Psychiat.*, 1907, v., p. 885).

Bayliss (*loc. cit.*, p. 206) points out that these researches of Head upon the posterior root ganglia in cases of herpes zoster seem to show the existence of antidromic impulses in the posterior root fibres. But it has not yet been clearly explained how such a lesion produces the characteristic eruption of herpes zoster. The above experiments of my own afford a very complete explanation of the mechanism. If the cells of the posterior root ganglia be irritated from hæmorrhage or other causes they will be capable of originating impulses which may pass in two directions, impulses which will pass centralwards, and cause the intense pain, and impulses which will pass peripheralwards along the fibre and down the limb of the bifurcation which ends in a blood vessel, and there produce a dilatation. An extensive involvement of the ganglion will thus give rise to an extensive eruption, and a smaller lesion will be associated with a smaller eruption.

In tabes, outbreaks of herpes zoster form a classical symptom, but they are much rarer than is generally supposed. Head states that in eight years he has only met with this conjunction three times. Tabes is a progressive disease of the sensory part of the nervous system, the sensory fibres undergoing degenerative changes, and it is only rarely that the cells of the posterior root ganglia will be stimulated sufficiently to actually produce a herpetic eruption.

There is another symptom in tabes, however, which is not fully understood, and is capable of being explained by my experiments, namely, "Charcot's Joints." The onset of this affection is sudden; the joint becomes rapidly swollen through distension with fluid. "There is no pain and no elevation of temperature. Soon the adjacent parts, or the whole limb may become swollen; but there is no pitting, no sign of inflammation, and the skin is pale. . . . As the effusion is absorbed the cartilages become eroded, the bony surfaces of the joint become worn away, and osteophytes may form; also the ligaments become relaxed. Owing to these two changes abnormal movements can be made laterally, or backwards, or in the direction of over-extension. Suppuration of the affected joint is quite exceptional" (Williamson, "Diseases of the Spinal Cord," 1908, p. 312). Henderson (*Journ. of Path. and Bact.*, 1905,

x., p. 211), who has made a study of this condition, concludes that the condition is always caused by trauma, and states that "the most important pathological anatomical change as yet demonstrated as preceding or accompanying the early stages of this arthropathy is the degenerative change in the sensory nerves and paths," and that trauma, in the broad sense of the word, must be considered to be the exciting cause, and, that the course of its development, owing to the prevailing analgesia, is due to the recurrence of such trauma, though possibly it may be aided by vaso-motor or reflex trophic changes, which may in turn be influenced by the prevailing sensory lesions. The essential lesion in tabes is the degeneration of the sensory nerves, and Leyden has suggested and Brissaud urged strongly that the tabetic lesion of sensory nerves may, by the lack of proper reflexes, bring about vaso-motor disturbances. It has also been urged that the sensory nerve to a cell is a trophic fibre, and that the degeneration of sensory nerves to a cell affects its nutrition.

Degeneration of the peripheral nerves in tabes appears first at the periphery of the fibre, and is less marked as we approach the spinal cord; the axon reflex which I have described at the terminations of these fibres will thus be interrupted; and possibly in the interruption of this reflex we have the explanation of the absence of pain, redness, head and swelling in "Charcot's joints." The condition is comparable to that in the eye after section of the fifth nerve with degeneration of the peripheral portion, and the atrophic changes in the knee-joint in "Charcot's joints" are comparable to those in the eye in keratitis neuroparalytica.

In hysteria it may be found, on the one hand, that the application of a supposed irritant may lead to an intense reddening of the part supposed to be injured; while, on the other hand, the application of a real irritant may not be followed by acute inflammation. This has been referred to by Adami (*Inflammation*, 1909) as evidence of the influence of the central nervous system upon the inflammatory process, and is now capable of explanation. We are dealing here with a functional disease of the nerves, in the one case they become hypersensitive, and in the other insensitive. In the first case central vaso-dilator impulses are exaggerated, and in the second the fibre does not conduct, and the peripheral axon reflex is lost.

Abstracts

ANATOMY.

THE CYTO-ARCHITECTURE OF THE CEREBRAL CORTEX
(557) **OF A HUMAN FŒTUS OF EIGHTEEN WEEKS.**
J. SHAW BOLTON and J. J. MOYES, *Brain*, Vol. 35, Part I., July 1912, p. 1.

THE authors have arrived at the following results by the histological examination of the cerebrum of a fœtus of eighteen weeks:—

1. Considerable progress has already occurred with regard to the specialisation of cortical areas and the differentiation of neuroblasts.

2. The Betz-cells are well developed, and the relatively very large Betz-cell area can be accurately mapped out.

3. The visuo-sensory area can be defined with accuracy. In the case of this area, however, specialisation of the cortex and differentiation of the neuroblasts are both less advanced.

4. The pre- and post-central cortices and the visuo-sensory area already possess the adult relationships to the Rolandic and calcarine fissures respectively.

5. The pre- and post-central cortices are remarkably well evolved in comparison with the rest of the cortex.

6. The cingulate cortex is of poor quality but is relatively well advanced in development.

7. The anterior frontal cortex, on the other hand, is throughout its depth extremely embryonic in structure.

8. There is very definite evidence that, in the complex of phylogenetic and ontogenetic factors which subserve the process of evolution, the latter from a very early period play a predominant part.

9. The cleavage of the developing neuroblasts of the cortex into upper and lower portions, which enclose between them the precursor of the inner line of Baillarger, takes place at a much earlier period than we have hitherto supposed. This is clear, since this line (L. iv.) is indicated in the rudimentary anterior frontal cortex, and since the Betz-cells which are contained in it in the pre-central region are so well developed.

A. NINIAN BRUCE.

THE EARLIER STAGES IN THE DEVELOPMENT OF THE
(558) **PITUITARY BODY.** J. ERNEST FRAZER, *Lancet*, Sept. 28, 1912, p. 875.

DURING the second and third months of embryonic life Rathke's pouch, at its dilated upper end, grows up on both sides of an infundibular or neural process, and encloses its proximal part, leaving its distal end freely projecting behind. At the same time lateral groups of epithelial processes spring from the front aspects of the pouch margins, and a central group from its front aspect between these. The lateral groups extend from below upwards, and thus reach the cornua that enclose the neural part, and in the interval thus occurring between them as they pass backward the central group comes to the surface. The groups, enlarging, form the great mass of the gland in the fourth month, and because they grow from its front wall they push the cavity to the back, where it lies under the neural portion. The buccal portion loses its connection with the naso-pharynx about the beginning of the third month or later, but a persistent tract remains below the skull running down the back of the nasal septum to the angle between the septum and the soft palate. A. NINIAN BRUCE.

PHYSIOLOGY.

HYPERTROPHY OF THE COCK'S TESTES AND COMB AFTER
(559) **PINEAL EXTIRPATION. (Hypertrophie es testicules et de la crête après l'extirpation de la glande pinéale chez le coq.)** C. FOÀ, *Arch. Ital. de Biol.*, Vol. 57, F. 2, July 30, 1912, p. 233.

A FRENCH version of the author's Italian paper on this subject (*v. Review*, Sept. 1912, p. 439). One may add to that abstract that when pinealectomised pullets, who had already begun to lay, were isolated with pinealectomised cockerels, their eggs proved fertile on artificial incubation. Foà promises a paper on the results of his histological examination of the endocrine glands of pinealectomised chickens, and also a comparative study of the pineal body at various ages. LEONARD J. KIDD.

THE EFFECTS UPON GROWTH AND METABOLISM OF THE
(560) **ADDITION OF SMALL AMOUNTS OF OVARIAN TISSUE, PITUITARY, AND THYROID TO THE NORMAL DIETARY OF WHITE RATS.** E. A. SCHÄFER. *Quart. Journ. Exp. Physiol.*, Vol. v., No. 3, Sept. 28, 1912, p. 1.

THE addition of ovarian or pituitary tissue in small amounts to the normal dietary of growing rats has little or no effect on their growth or metabolism. Addition of similar amounts of thyroid

tissue causes a great increase of food consumption, especially in quite young animals, with acceleration of growth and retention of nitrogen in the body. At the same time, the nitrogenous metabolism is greatly increased, as is indicated by the large augmentation of nitrogen in the excreta—especially in the urine. Certain differences are observable in the two sexes. The excretion of phosphorus appears to be uninfluenced by ovarian or pituitary addition, but there is an increase with thyroid when the addition of this to the food is increased beyond a certain amount. There appears to be an increased excretion of calcium and magnesium in pituitary and thyroid-fed animals as compared with those to the food of which ovarian tissue is added. But the variations in different experiments are considerable, and render this result doubtful. A. NINIAN BRUCE.

THE INFLUENCE OF THE INFUNDIBULAR PORTION OF THE
(561) **HYPOPHYSIS UPON THE PUPIL.** S. J. MELTZER, *Proc. Soc. f. Exp. Biol. and Med.*, Vol. ix., No. 5, May 1912, p. 102.

THE author found that pituitrin generally caused dilatation of the pupil; he never found a miosis. When the superior cervical ganglion is removed on one side from a cat or rabbit, injection of pituitrin does not cause dilatation of the pupil, both pupils, and especially on the operated side, being constricted for a short time soon after the injection. Adrenalin, on the other hand, causes a dilatation (prolonged) of the pupil on the operated side.

R. A. KRAUSE.

ON THE ACTION OF THE INFUNDIBULAR PORTION OF THE
(562) **HYPOPHYSIS UPON VASODILATORS.** J. AUER and S. J. MELTZER, *Proc. Soc. f. Exp. Biol. and Med.*, Vol. ix., No. 5, May 1912, p. 100.

FROM investigations carried out the authors put forward the hypothesis that the infundibular portion of the pituitary reduces the irritability of the vasodilators. R. A. KRAUSE.

PATHOLOGY.

ON A SPECIAL FORM OF ACUTE LOCALISED DESTRUCTION
(563) **OF NERVOUS TISSUE IN THE BRAIN BY TUBERCULOSIS. (Uber eine besondere Form akuter herdförmiger Destruktion des nervösen Gewebes im Gehirn bei Tuberkulose (akute nicht-eitrige Encephalitis).)** O. SITTIG, *Ztschr. f. d. ges. Neurol. u. Psychiat* (Orig.), Bd. x., 1912, S. 289.

THE case was that of a girl of 15 years who died of pulmonary tuberculosis. The brain showed nothing noticeable on the surface.

On section, however, both in the white and grey matter numerous well-defined grey areas varying in size up to that of a pea were found. There were no indications of reaction in the neighbourhood of these. Microscopically the areas in the grey matter differed from those in the white. In the former the area was merely necrotic with degeneration of the nerve cells, myelin sheaths and in part of the axis cylinders. In the greater number of the white matter areas all evidence of nerve elements had disappeared. In their stead large numbers of round cells were found with one or more rounded nuclei and protoplasm with lattice structure, the strands of which were made up of very fine granules arranged in rows. These cells, when stained with Sudan III. or Scharlach R, were found to be full of fat droplets. Marchi preparations showed these granules black. The earlier stages of the process were also to be seen in gaps in the nerve structures without the presence of these granular cells. Changes in the vessels (thrombosis and cell infiltration) were observed but not in all cases.

As regards the nature of these appearances, in some respects they resembled the areas found in multiple sclerosis, but on the other hand there was no inflammatory reaction and no glia proliferation. In many respects the areas resemble those described by Friedmann and others, and named non-suppurative encephalitis but differs in showing no vascular inflammatory reaction. The author regards the process as an acute destruction of the nerve parenchyma by the toxin; this destructive process calls out a reactive one on the part of the glia cells which proliferate. The process according to the author cannot be regarded as an inflammatory one owing to the absence of vascular phenomena.

JAMES MILLER.

THE BRAIN LESIONS PRODUCED BY ELECTRICITY AS OB-
(564) **SERVED AFTER LEGAL ELECTROCUTION.** E. A. SPITZKA and H. E. RADASCH, *Amer. Journ. Med. Sci.*, Vol. cxliv., No. 3, Sept. 1912, p. 341.

THE medulla oblongata, pons and midbrain of five criminals executed by electricity were obtained fifteen minutes after death. After fixation in formalin, sections were cut by the celloidin method and stained with hæmatoxylin and eosin, with Van Gieson's stain and with Weigert's myelin stain.

At all levels peculiar areas, varying in size and number, were noticed. These were circular in outline, ranging in diameter from 25 to 300 μ. They consisted of two portions, a central rarified part and a peripheral condensed zone. The most characteristic areas contain a blood vessel surrounded by a delicate small-

meshed reticulum representing the central four-fifths of the area, The fibrils of the reticulum are, in the main, radially directed, and nuclei are sometimes observed along this course. The peripheral zone surrounding the central portion in a ring-like manner appears to be condensed, staining more deeply than the surrounding unaffected tissue, and is sometimes seen to be composed of circularly arranged strata, which are usually free from nuclei.

The maximum number of lesions are found in the most constricted parts of the brain stem in the path of the current, and are most numerous along the longitudinal fibre tracts and blood vessels. The authors think they are due to a sudden liberation of bubbles of gas due to the electrolytic properties of the current as it seeks the paths of least resistance along the vessels.

A. NINIAN BRUCE.

A CASE OF GENERALISED STREPTOTRICHOSIS WITH EX-
(565) **TENSIVE LESIONS IN THE CENTRAL NERVOUS SYSTEM.**
W. W. C. TOPLEY, *Brain*, Vol. 35, Part I., *July* 1912, p. 26.

THE case is that of a man, aged 45, who was admitted to hospital with a large tender swelling in the lower part of the abdomen of twenty-four days duration. Upon incision, about half a pint of foul-smelling yellow pus was removed. This proved to be sterile. The wound continued to discharge for seven weeks, when an exploratory laparotomy was performed. Temporary improvement only followed, and later the greater part of both lungs became dull, followed still later by a series of fits beginning in each case with clonic movements of the left arm and leg, which then became generalised and were succeeded by a period of rigidity. Unconsciousness usually lasted from ten to fifteen minutes. Frequent rigors occurred until the time of death.

At the autopsy extensive lesions were found in the central nervous system consisting of a basal lepto-meningitis and multiple cerebral abscesses. These lesions were proved to be streptotrichial by the demonstration of colonies of the organism in microscopical sections. There was no disease of the cranial bones nor of the soft tissues of the head or neck, but extensive streptotrichial lesions were found in the lungs and liver. It is therefore clear that the cerebral lesions resulted in this case from an infection of a pyæmic type, and not as the result of extension from neighbouring parts, and a study of the literature would suggest that infection by the blood-stream is the rule in cases of streptotrichosis in this situation. The colonies of the streptothrix found in the cerebral lesions showed certain marked differences from those found in the liver and lungs, and these differences may, perhaps,

be accounted for by the different forms in which the infection may have been carried, in the one case as true spore-forms from the pre-existing pulmonary lesions, in the other as short filaments, which would appear to be the more common method.

A. NINIAN BRUCE.

CLINICAL NEUROLOGY.

(566) **THE PROJECTION OF THE RADIAL AND ULNAR FIELDS OF SENSATION ON THE POSTCENTRAL AND PARIETAL CORTICAL GYRI. (Die Projektion der radialen und ulnaren Gefühlsfelder auf die postzentralen und parietalen Grosshirnwindungen.)** MUSKENS, *Neurol. Centralbl.*, August 1, 1912, p. 946.

THE following are the author's conclusions, based on five personal cases (of which four were operated on):—

1. Defects of sensibility of cerebral origin concern the periphery of the limbs more than the proximal segments. The cortical field for arm and hand sensibility bears a greater disproportion to those for the trunk, face, and leg than does the corresponding motor area to the latter motor areas.

2. Touch and the sense of localisation, also the muscle sense and stereognosis, are much more strongly represented in the cortex than pain and temperature senses.

3. In those clinical cases (of the author's) in which the loss of sensibility in the arm followed a radial or an ulnar distribution, the cortical lesion had its largest diameter in an antero-posterior (sagittal) direction. In two cases a lesion of the post-central gyrus was unassociated with any sensory loss: and in these the largest diameter of the lesion was vertical (coronal) in direction.

4. His cases support the view which localises stereognosis in the parietal convolutions.

5. The sensory area for the hand is much larger in proportion than those of the other parts of the body. In this area a radial and an ulnar field can be distinguished: these overlap to a certain extent: the radial zone is the lower of the two, on the postcentral and parietal gyri.

6. The sensory areas do not correspond strictly to the motor areas but extend beyond them; the sensory area for the hand, for instance, extends into the motor area for the trunk and upper part of the leg.

7. Lesions in the left hemisphere are more apt to cause a sensory loss which has a radial or ulnar distribution than lesions of the right hemisphere.

S. A. K. WILSON.

A LECTURE ON EYE SYMPTOMS AND THE EARLY DIAG-
(567) **NOSIS OF DISEASES OF THE NERVOUS SYSTEM.** JAMES HINSHELWOOD, *Lancet*, Sept. 14, 1912, p. 743.

THE author emphasises the value of careful and systematic observation of the eye symptoms in all cases of nervous disease, and has selected the following examples to show how intimate this connection is: ocular palsies in obscure meningitis and early locomotor ataxia; Argyll Robertson pupils early in tabes, general paralysis and cerebral syphilis; nystagmus in disseminated sclerosis, Friedreich's ataxia, and in miners; diminution of the visual fields in cerebral tumour, etc.; optic neuritis and hyperæmia of the optic discs in cerebral tumour and meningitis, and optic atrophy in tabes and disseminated sclerosis. A. NINIAN BRUCE.

FACIAL PARALYSIS IN ZOSTER. (Contribution à l'étude de la
(568) **paralysie faciale zostérienne.)** C. DOMBROWSKI, *Thèses de Paris*, 1911-12, No. 343.

DOMBROWSKI discusses the anatomy and physiology of the facial nerve, and has collected sixty-four cases from literature which he classifies as follows: (1) auricular zoster; (2) auricular zoster with facial paralysis; (3) facial paralysis associated with facial zoster (*a*) ophthalmic zoster, (*b*) zoster of cheek, (*c*) zoster of mouth; (4) facial paralysis associated with cervico-facial zoster, (*a*) cervical zoster, (*b*) cervico-facial zoster, (*c*) cervico-brachial zoster, (*d*) cervico-occipital zoster. (*Cp. Review*, 1911, ix., p. 567).

J. D. ROLLESTON.

CONGENITAL UNILATERAL AGENESIS OF THE VOLUNTARY
(569) **MUSCLES SUPPLIED BY THE VAGO-ACCESSORIUS (? NUCLEAR APLASIA). (Angeborener einseitiger Defekt sämtlicher willkürlicher, vom N. vago-accessorius versorgter Muskeln (Kernaplasie ?).)** STERZING, *Neurol. Centralbl.*, May 16, 1912, p. p. 617.

IN this curious case, the right trapezius and sterno-mastoid, and the muscles of the right half of the palate, throat, and larynx were awanting, or present only as the merest trace. The author concludes, not for a congenital muscle defect, but for a congenital nuclear aplasia. S. A. K. WILSON.

PROGRESSIVE SPINAL MUSCULAR ATROPHY OF INFANTS
(570) **(WERDNIG-HOFFMANN TYPE).** F. E. BATTEN and GORDON HOLMES, *Brain*, Vol. xxxv., Part I, 1912, p. 38.

THE patient was first seen when 1 year 2 months old. She was born at the seventh month, and was normal till she was

about 6 months old. Between 9 and 12 months she lost almost all power in her limbs and could not sit up or hold her head erect unsupported. She died at the age of 2 years 9 months.

Autopsy forty-eight hours later. The posterior roots were normal, but the anterior roots in both their intra- and extra-medullary courses were small and poorly stained. The staining of the medullated fibres in the grey matter was defective, and the medullated meshwork in the ventral horns was thinner than normal. The most striking feature was the great deficiency of ventral horn-cells while those that remain were small, but showed no marked deviation from the normal. The cells of Clarke's column and of the intermedio-lateral tract appeared normal.

The majority of the muscle fibres presented the appearance of a simple atrophy, with little or no increase of connective tissue or nuclei. Large and thick bands of fibrous tissue and an excess of fat were present in all the affected muscles. The presence of abnormally large fibres of cylindrical outline and the occurrence of central degenerative changes, and of fission of some of the large fibres is, however, evidence that at least some of the fibres have undergone retrogressive changes similar to those which occur in both primary myopathic affections and in the spinal muscular atrophies.

On the pathological side the evidence is strongly in favour of regarding the condition as primarily myelopathic, but no evidence of this degeneration in actual progress can be obtained by the Marchi or Nissl methods, and even the muscle changes cannot decide the question definitely. A. NINIAN BRUCE.

(571) **PROGRESSIVE SPINAL MUSCULAR ATROPHY OF YOUNG CHILDREN (WERDNIG-HOFFMANN TYPE). (Report of a case, with pathological examination.)** LEONARD PARSONS and DOUGLAS STANLEY, *Brain*, Vol. XXXV., Part I., 1912, p. 50.

THE case is here described of a boy, aged 3, who was a "normal" child until 10 months old; he then had an attack of bronchitis after which wasting became apparent. The muscular weakness gradually increased until death took place from broncho-pneumonia.

The autopsy was performed twenty-four hours later, and the pathological findings agree well with those described in previous cases, viz., great diminution in size and number of the cells of the anterior horn, atrophy of the anterior nerve-roots, fibrosis and lipomatosis of the muscles. A. NINIAN BRUCE.

TWO CASES OF INFANTILE FAMILIAL SPINAL MUSCULAR ATROPHY (WERDNIG-HOFFMANN TYPE). (Zwei Fälle von infantiler familiärer spinaler Muskelatrophie (Werdnig-Hoffmann-'scher Typus).) GATZ-EMMANUEL, *Neurol. Centralbl.*, Aug. 16, 1912, p. 1010.

(572)

THE author describes the cases of two brothers, one aged 10 and the other 8, which she considers belong to the Werdnig-Hoffmann group. The elder of the two boys showed no symptoms until he was 6 years old, when gradual muscular weakness was noticed, and in two years' time he was unable to stand or walk. The limbs were very weak; in the arms distal movements were stronger than proximal. The head and neck musculatures were strong. The trunk muscles were weak, and all the leg muscles; the feet were contractured in the equinovarus position; many of the affected muscles were very atrophic; the tendon reflexes in the lower extremities were awanting. The younger brother had shown symptoms for two years before coming under observation. In his case there was little weakness of legs or arms, but he had difficulty in getting up from the ground, and "climbed up himself" to reach the erect position. Both children showed the "loose shoulder" phenomenon to a marked degree. The knee and Achillis jerks were present in the younger brother.

The author thinks the cases belong to the Werdnig-Hoffmann group, in spite of their late onset for that disease, and notwithstanding certain pseudo-hypertrophic muscles. If one may judge by the photographs, especially of the younger brother, the cases might well be classed as pseudo-hypertrophic muscular dystrophy.

S. A. K. WILSON.

A SIMPLE PRACTICAL METHOD FOR ISOLATING, IN A GIVEN NERVE TRUNK, THE MOTOR NERVE FIBRES FOR A GIVEN MUSCLE, ETC. [Über eine einfache praktische Methode, in einen Nervenstamme die motorischen Nervenfasern für einzelne Muskeln zu isolieren (einige gute Erfolge der partiellen Resektion des motorischen Nerven bei der Athetosis).] MEDEA and BOSSI, *Neurol. Centralbl.*, June 1, 1912, p. 684.

(573)

THE authors have found it easier to identify and separate the strands of fibres in a nerve trunk, going to a given muscle, by mechanical irritation, *i.e.*, by direct stimulation with a pair of forceps than by electrical stimulation. This method was employed in identifying certain strands going to certain muscles in a case of athetosis.

S. A. K. WILSON.

MUSCULAR EXCITABILITY AFTER DEATH. (**Muskelmechanische**
(574) **Erscheinungen nach dem Tode.**) TSAKO, *Neurol. Centralbl.*, June 1 1912, p. 675.

THE author found direct muscular excitability present in the body after death for an hour or more. S. A. K. WILSON.

FRACTURE OF THE CERVICAL SPINE; OPERATION;
(575) **NECROPSY.** ALEXANDER DON, *Lancet*, Sept. 28, 1912, p. 880.

THE patient was a man, aged 41, who lost control of his bicycle while descending a steep hill and was thrown against a wall. His recollection of the accident was hazy, but he remembers trying to rise and finding both legs powerless and a tingling sensation in the arms and hands. There was no evidence of fracture of the skull, but there was complete paraplegia with slight frontal headache and a feeling of sickness. An X-ray plate showed dimly a fracture of the sixth cervical vertebra. On the seventh day after the accident laminectomy was performed, and it was found that the sixth vertebra was broken across the lamina at the right side and a loose piece of the arch was removed from the spinal canal. No injury to the cord was seen or felt. The wound was then sewn up. Some return of movement in the legs took place, but he developed cystitis, bedsores, hiccough, and vomiting, and died thirty-two days after the accident. A. NINIAN BRUCE.

AMPUTATION IN INFANTILE PARALYSIS. E. M. CORNER and
(576) C. E. BASHALL, *Lancet*, Sept. 28, 1912, p. 874.

EIGHT cases of "neglected" infantile paralysis are here reported in patients in whom expensive apparatus which needed changing as the child grew was out of the question. Rapid improvement in health, spirits, and well-being followed the removal of the withered limb. When the circulation in the limb is bad, *e.g.*, chilblains are present, the amputation should be done as high up as possible. A. NINIAN BRUCE.

CRYÆSTHESIA IN TABES. (**La cryesthésie tabétique.**) MILIAN
(577) *Bull. et mém. Soc. med. Hôp. de Paris*, 1912, xxxiii., p. 929.

MILIAN showed a tabetic patient, aged 52, who for the last two months had suffered from a feeling of intense cold in the left buttock and thigh. There was no evidence of Bright's disease, in which this symptom was first described by Dieulafoy. The part affected corresponded to L^2, L^3, L^4, S^2, and S^3. Cryæsthesia in tabes

is transitory and paroxysmal. It is often associated with lightning pains. It can be dispelled by emotion or a muscular contraction.

J. D. ROLLESTON.

TYPHOID FEVER IN A TABETIC WOMAN (Infectious diseases and tabes.) (A propos d'un cas de fièvre typhoïde chez une tabétique (Maladies infectieuses et tabes).) P. POUGET, *Thèses de Paris*, 1911-12, No. 348.

(578)

THE thesis deals with the case recently recorded by Le Noir (*v. Review*, 1912, x., p. 289), in which the first symptoms of tabes occurred a few weeks after smallpox which preceded the attack of typhoid fever by six years.

Among eighty-six cases of tabes investigated by Pouget at the Salpétrière and at Brevannes the following infections were found in the course of the disease: chronic pulmonary tuberculosis, four cases; pneumonia, 4 cases; bronchitis, urinary infection, multiple abscesses, and erysipelas, two cases of each. In spite of the frequency of these infections, tabetic patients do not present a diminished resistance to microbic invasion which they are as well able to withstand as other persons. As regards the influence of acute infections upon tabes, they appear to hasten the development of symptoms, to aggravate those already present, and to favour the localisation of tabetic symptoms on the organ affected. Typhoid fever, owing to its predilection for the nervous system, is especially liable to affect the course of tabes.

J. D. ROLLESTON.

THE TREATMENT OF LOCOMOTOR ATAXIA. E. L. HUNT, *Amer. Journ. Med. Sci.*, Vol. cxliv., No. 3, Sept. 1912, p. 398.

(579)

A SHORT general description of the treatment of the various symptoms of this disease, which were found to occur in the following proportions: Pain in 88 per cent. of the cases, disturbances of the bladder in 80 per cent., ataxia in 75 per cent., ocular palsies 10 per cent., perforating ulcer of the foot in 5 per cent., and crises are only met with in about 6 per cent.

A. NINIAN BRUCE.

MENINGOCOCCAL SEPTICÆMIA WITH LATE MENINGEAL LOCALISATION. (Méningococcémie avec localisation méningée tardive.) A. LEMIERRE, E. MAY, and S. PORTRET, *Gaz. d. hôp.*, 1912, lxxxv., p. 1103.

(580)

A WOMAN, aged 25, was suddenly taken ill with shivering, vomiting, and diarrhœa. On admission to hospital on the third day of disease the high temperature, distended abdomen, and enlarged spleen

suggested typhoid fever. Labial herpes, however, was present. A blood culture on the fifth day showed meningococci, meningeal symptoms did not appear till the tenth day. Recovery followed injections of antimeningococcic serum. A second blood culture made on the thirteenth day remained sterile (*cf. Review*, 1912, x., p. 27). J. D. ROLLESTON.

PARAMENINGOCOCCIC INFECTIONS. (Les infections à para-
(581) **méningocoques.)** E. RADEFF, *Thèses de Paris*, 1911-12, No. 378.

RADEFF classifies these into (1) septicæmia (*v. Review*, 1911, ix., p. 205); (2) localised infections, which are subdivided into (*a*) rhino-pharyngitis similar to that caused by the meningococcus, and (*b*) meningitis.

All the hitherto recorded cases, ten in number, of parameningococcic infection have proved fatal, but two cases shortly to be published, one of septicæmia and the other of meningitis, recovered after injection of a parameningococcus serum prepared by Dopter.
J. D. ROLLESTON.

A CASE OF MENINGOCOCCUS ENDOCARDITIS AND SEP-
(582) **TICÆMIA WITH LATE APPEARANCE OF MENINGITIS.**
F. G. FINLEY and J. L. RHEA, *Med. Record*, 1912, ii., p. 42.

A MAN, aged 47, was admitted to hospital after being ill three weeks with chilly sensations, sweats, pains in joints, palpitation, dyspnœa, and præcordial pain. Examination showed moderate cardiac enlargement, an apical systolic murmur, hæmorrhagic nephritis, an enlarged liver, and ascites. The temperature was slightly raised, and continued for two weeks with a maximum of 101.3. He then became dull, and a copious hæmorrhagic eruption appeared on the skin, with rigidity of neck and arms and pathological reflexes. There was a leucocytosis of 29,000 to 31,000. Death preceded by coma took place four days after the appearance of meningitis. The blood and cerebro-spinal fluid gave pure cultures of meningococci. The necropsy showed malignant endocarditis of the mitral and aortic valves, acute nephritis and purulent meningitis. Smears from the heart valves and meninges showed numerous meningococci and pure cultures of the organism were obtained from these structures. J. D. ROLLESTON.

TWO UNUSUAL FORMS OF MENINGITIS OCCURRING IN IN-
(583) **FANCY.** E. B. SMITH and A. W. G. WOODFORDE, *Lancet*, July 27, 1912, p. 236.

THE first of these cases was an infant of 10 months, with fourteen weeks' illness from meningitis, the disease being at first a suppura-

tive one, due apparently to a leptothrix infection alone, with very slight initial symptoms. The child was apparently recovering, when there was what the authors consider to be for various reasons given, a secondary infection by tubercle bacilli from which death resulted. The second case was a meningitis dependent on *Bacillus coli communis*, with no evidence of any other seat of infection. This case also was fatal. *B. coli meningitis* which may be either serous or suppurative in type, appears to be either a very rare or else a very little noted complaint.

J. H. HARVEY PIRIE.

THE COMATOSE FORM OF TUBERCULOUS MENINGITIS IN THE ADULT. (La forme comateuse de la méningite tuberculeuse de l'adulte.) (584) L. CADO, *Thèses de Paris*, 1911-12, No. 324.

THE thesis contains the histories of seventeen cases in adults aged from 20 to 49 years. The characteristic symptoms were on the one hand mental enfeeblement, torpor and tendency to coma, and on the other hand an absence of the ordinary symptoms of tuberculous meningitis. This anomalous form of the disease is determined by tuberculous lesions situated more or less exclusively in the choroid plexuses, and by the resulting hydrocephalus of the ventricles.

J. D. ROLLESTON.

A CASE OF RETROGRESSIVE TUBERCULOUS MENINGITIS. (585) W. TYRRELL BROOKS and ALEXANDER G. GIBSON, *Lancet*, Sept. 21, 1912, p. 815.

THE patient was a girl aged 4, one of a family of nine, all of whom were healthy. She was taken ill with vomiting, thirst, and drowsiness, and became unconscious in two days. Kernig's sign was present on both sides, the knee-jerks were brisk, and there was a double Babinski. The fluid obtained by lumbar puncture was not under tension, it was slightly turbid, contained an excess of lymphocytes, and in it at one time tubercle bacilli were found in small numbers.

She was given a series of gradually increasing injections of tuberculin, beginning with 0·00025 c.c. on 24th September, and ending with 0·2 c.c. on 27th November. During the course of these injections, and it was thought as the result of them, the general condition slightly improved; from being comatose, the patient improved so much as to be able to notice the things going on in the ward; but she became very emaciated, double neuro-retinitis developed, and death occurred from broncho-pneumonia.

At the autopsy the brain showed a very slight general thickening

of the pia mater, chiefly in the neighbourhood of the cortical vessels, and in several spots near arteries there were small, whitish, flattened areas not more than 1 mm. across, recalling both in distribution and size the appearance of miliary tubercles; some were firmly adherent to the brain cortex. On section, these showed merely some young fibrous tissue patches, and in no section could any resemblance be found to the structure of a tubercle, though in places a collection of nuclei and some cytoplasm suggested the appearance of a giant cell undergoing atrophy. The dura mater of the spinal cord was thickened over the posterior aspect of the lumbar cord, but this on section consisted of granulation tissue becoming fibrous. None of these sections showed any trace of tubercle bacilli.

The authors think this is an undoubted case of healed tuberculous meningitis. A. NINIAN BRUCE.

PROPHYLACTIC VACCINATION AGAINST EPIDEMIC MENINGITIS. (586) ABRAHAM SOPHIAN and J. BLACK, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 7, Aug. 17, 1912, p. 527.

THE authors inoculated eleven students subcutaneously with a vaccine prepared from an organism, five generations old, isolated from the cerebro-spinal fluid of a patient suffering from this disease. It was grown on 2 per cent. glucose agar for eighteen hours and heated at 50 C. for an hour. Five students received 500,000 bacteria as the first dose, and five 1,000 million. Seven days later they were vaccinated again with the same vaccine in doses of 1,000 million and 2,000 million, and a week later with 2,000 million of a freshly prepared vaccine.

It was found that a leucocytosis followed the vaccination for a few days. There was a prompt response in the formation of immune bodies, which appear four days after the first vaccination and increase rapidly after the repeated injections. Agglutinins develop in larger quantities and more rapidly than the third order of immune body. By complement fixation one could obtain sharp fixation at 1 : 200 at the end of the third week, this being a high degree of immunity. Apparently the very large doses did not produce much higher immunity than the smaller doses used. Three injections appeared to give desirable results; the doses of 500 million, 1,000 million, and 1,000 million seeming to be sufficient.

The local reaction usually passes off in twenty-four hours, while transient signs of meningeal irritation—severe headache, vertigo, vomiting, and phobophobia may be observed.

A. NINIAN BRUCE.

SYSTEMIC OIDIOMYCOSIS. (A study of two cases developing terminal oidiomycetic meningitis.) GLANVILLE Y. RUSK and FREDERICK J. FARNELL, *University of California Publications in Pathology*, Vol. ii., No. 5, June 21, 1912, pp. 47-58 (one plate).
(587)

ONLY four cases of systemic oidiomycosis have been reported with a terminal meningitis caused by forms of the oidia. Two more cases are here added; these were found in a series of about 780 autopsies, and in a community where the more usual forms of oidiomycosis, such as skin lesion, etc., are all but unknown.

The first case was that of a domestic servant aged 63. Very little was known of her history except that she had become confused and talkative, and was committed to the Manhattan State Hospital as insane. She was then in a semi-stuporous condition, when spoken to appeared confused and bewildered, and stared vacantly at the questioner. The pupils were equal, irregular in outline, and reacted to light and to accommodation. All deep reflexes of arms present, but both knee jerks and Achilles jerks were absent. No ankle clonus or Babinski. Abdominal reflex absent. Muscular strength was very weak. Fine tremor of tongue, coarse tremor of fingers, arms, and legs. Lumbar puncture was not performed. Patient died twelve days later following an attack of hæmaturia. The clinical diagnosis was senile dementia. At the autopsy a number of cavities were found in the left lung filled with a sticky gelatinous material. This suggested a colloid carcinoma, certainly not tuberculosis. No cultures were taken. Sections showed these gelatinous masses to consist of a spherical, doubly-contoured organism with a sticky, jelly-like capsule of varying thickness lying in an amorphous matrix. The organism appeared to proliferate by budding.

Two sites of infection were found in the nervous system: first, in the meninges over the base of the brain, along the Sylvian fissure, over the cerebellum and throughout the pia of the cord; and second in the basal ganglia of both hemispheres, where circumscribed areas filled with a gelatinous material were found.

The second case was a German, aged 57, a mixer of paints by occupation. He had contracted syphilis at 20 years of age. No symptoms of lead poisoning. He began to suffer from severe pain in his back and chest in 1908, he lost weight and strength and became easily fatigued. In September 1909 he became weak on his entire right side, and speech was lost one month later. He became mentally affected, and was committed to Bellevue Hospital as insane. He died one month later.

At the autopsy the brain showed diffuse pial haziness with flaky spots such as are found in general paralysis, with pial haziness. On examining the cerebro-spinal fluid, which was turbid,

at this stage it was found that what were previously thought to be lymphocytes were really typical organisms, which were also found in the lung and kidneys.

The organisms described in these two cases appeared to be the same. They are spherical, varying in size up to 20 μ. They are doubly contoured, but the membrane is rather thin. Outside the capsule is a viscid capsule varying in thickness. The organism stains with any basic dye with no differentiation of internal structure. Reproduction is entirely by budding, no evidence of sporulation nor of endospores was found and no hypal formation; it appeared to be a simple yeast. A. NINIAN BRUCE.

NEUROFIBROMATOSIS AND ACROMEGALY. (Neurofibromatosis und Akromegalie.) G. WOLFSOHN and E. MARCUSE, *Berl. klin. Wchnschr.*, 1912, xlix., p. 1088.
(588)

THE patient was a man, aged 24, who had had tumours and pigment spots from earliest childhood. His father had been similarly affected. Signs of acromegaly had developed within the last year. X-rays showed slight widening of the sella turcica.
J. D. ROLLESTON.

PLEXIFORM NEUROMA OF LID AND ORBIT. H. EALES, *Birmingham Med. Rev.*, 1912, xx., p. 42.
(589)

THE patient was a child, aged 3 years, with a congenital growth affecting the right lid, which was enlarged and ptotic, and orbital tissues, and in which hard cord-like masses could be felt. The right eye was enlarged, and vision apparently lost. Microscopical examination showed that the cord-like structures were thickened nerves. J. D. ROLLESTON.

ESSENTIAL, OR PRIMARY LATERAL SCLEROSIS. J. H. LLOYD and S. D. W. LUDLOW, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 13, Sept. 28, 1912, p. 1173.
(590)

THE authors describe three cases of this condition. The first is that of a man who began to lose power in all four limbs, and gradually developed a spastic paralysis. The deep reflexes in the arms and legs were all much exaggerated. The sphincters were unaffected. There was no atrophy of muscles beyond that of disuse, unless perhaps in some of the small muscles of the hand. A few faint fibrillary tremors were present in the shoulder muscles. There were no bulbar symptoms nor any constant altera-

tion of sensation. Although syphilis was denied, the Wassermann reaction was positive.

The second case was a plumber, aged 33, who became unusually easily tired in his legs about five years ago. This grew gradually worse, and the arms became also involved. There were no sensory symptoms and no muscular atrophy. The blood showed no basophilia (lead-poisoning) but the Wassermann reaction was positive.

The third case was a man aged 70; his legs became spastic, following a short period of weakness. The arms were unsteady upon voluntary movement, but showed no loss of strength. There were no sensory symptoms and the Wassermann reaction was positive. At the autopsy a sclerosis of both crossed pyramidal tracts was found and no evidence of any cerebral or other lesion beyond a small area of softening in the right parieto-occipital region which was in no relation to any motor fibres. The pia round the cord showed mild lymphocytic infiltration.

The authors consider that there is a striking resemblance between all tract degenerations such as in amyotrophic lateral sclerosis and primary lateral sclerosis with tabes. The Wassermann reaction was positive in all these three cases, and the author thinks that the overaction or exhaustion of certain sets of neurones in a serum in which there is a distinct chemical alteration, as when syphilis is present, would result in the degeneration of that system abiogenetically the weakest. A full report of the discussion of this paper is given (*cf. Review*, 1912, x., p. 88).

A. NINIAN BRUCE.

AMYOTROPHIC LATERAL SCLEROSIS WITH INVOLVEMENT
(591) **OF THE VAGUS NUCLEI AND CLARKE'S COLUMNS. (Amyotrophische Lateralsklerose mit Beteiligung der Vaguskerne und der Clarke'schen Säulen.)** MUNDIE, *Neurol. Centralbl.*, May 16, 1912, p. 624.

A TYPICAL case of amyotrophic lateral sclerosis, in which the cells of Clarke's column were markedly degenerated, as were the cells in the dorsal nucleus of the vagus—very unusual findings.

S. A. K. WILSON.

ASYMMETRY IN TOOTH FORMATION AND IN THE CENTRAL
(592) **NERVOUS SYSTEM. (Asymmetrie in der Zahnbildung und im Zentralnervensystem.)** BERETTA, *Neurol. Centralbl.*, August 1, 1912, p. 961.

IN 54 per cent. of cases the writer finds asymmetry in the cutting (and also probably in the formation) of the milk teeth. In this

54 per cent. of cases, the asymmetry is on the right side in 46 per cent. and on the left in 8 per cent. In the remaining percentage of cases the dental formation is symmetrical, but in many of these the observation has been made by the mother that the teeth appeared on the right side first. Many children in whom the dental asymmetry concerns the left side, are either left-handed themselves or have left-handed parents or relations. The facts are important. The discussion on their significance is somewhat meagre: there is no reference to the work of Stier in this connection.

S. A. K. WILSON.

A CASE OF CEREBRAL TUMOUR PRESENTING AN UNUSUAL (593) "CROSSED REFLEX." E. B. GUNSON, *Lancet*, Aug. 3, 1912, p. 295.

THIS patient, a male of 15, presented symptoms of a tumour involving the right frontal region. He was operated upon, craniectomy being performed over that region, but no tumour was found, nor was there any obvious increase of intracranial pressure. About three weeks after the operation, the knee-jerks, which previously had been exaggerated, diminished, and the following reflex was noticed for the first time. On grasping firmly the quadriceps extensor muscle with the thumb and finger of one hand, immediate flexion occurred at the contralateral hip-joint. The reflex was present equally on each side; no response was produced by stroking the skin of the thigh or by percussion of the muscles or bones. There was no movement at the hip-joint on the ipsolateral side, but dorsiflexion of the great toe resulted on this side.

J. H. HARVEY PIRIE.

ALBUMIN ESTIMATION OF CEREBRO-SPINAL FLUID: SYN-(594) DROME OF MASSIVE COAGULATION AND XANTHO-CHROMIA. J. G. GREENFIELD, *Lancet*, Sept. 7, 1912, p. 685.

THE method used in the routine examination of the cerebro-spinal fluid in thirty-eight cases of nervous disease was a quantitative modification of the Noguchi butyric acid reaction. By this method estimations of from two to three times the maximum normal quantity of albumin were found to be common in syphilitic and parasyphilitic diseases. In five cases amounts far exceeding this were found varying from five to twenty times the maximum normal, *i.e.*, instead of the normal ·02 per cent. to ·05 per cent., readings of ·5 per cent. to 2 per cent. were obtained. Two of these readings were from cases of syphilitic meningitis, two from diffuse malignant disease of the meninges, and one from a paraplegia due to a

localised lesion of uncertain nature. In the latter three cases there was no increase in the cell content. A review of the literature furnished instances of a similar condition in tumours of the brain and cord. In some of these cases the fluid was yellowish and in some coagulated in the needle spontaneously. It is suggested that the increase in the albumin content is due to loculation of the spinal fluid, so that it does not enter into the general circulation of the cerebro-spinal fluid. A bibliography of the few cases of this kind that have come to the author's knowledge is appended. AUTHOR'S ABSTRACT.

SYPHILITIC POLIOENCEPHALITIS CURED BY "606." (**Polioencé-**
(595) **phalite syphilitique. Guérison par le "606."**) F. BAUDOIN, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiii., p. 894.

A MAN while under treatment for paralysis of the right external rectus by biniodide of mercury injections developed complete right facial hemiplegia, irregular pupils and left ptosis, together with severe headache, insomnia, and spinal lymphocytosis. Wassermann's reaction was positive. In the course of four weeks he was given six intravenous injections of "606." Complete recovery took place. Wassermann's reaction became negative after the first injection, and remained so. J. D. ROLLESTON.

SYPHILITIC POLYNEURITIS. (**Über syphilitische Polyneuritis.**)
(596) HOFFMANN, *Neurol. Centralbl.*, Sept. 1, 1912, p. 1075.

TRUE syphilitic polyneuritis occurs exclusively in the stage of the secondaries, from the third to eighteenth month, generally speaking, after infection, *i.e.*, at the same time as the exanthem, the glandular swellings, and the angina specifica. It is a toxi-infective condition and closely resembles any ordinary peripheral polyneuritis: perhaps it occurs a little more frequently in the upper than in the lower extremities, and occasionally it progresses to ataxia, pseudo-tabes, and occasionally to bladder and rectal difficulties. It is to be distinguished from the more familiar neuritis of the meta-syphilitic stage, which is secondary to a localised syphilitic meningitis—the "radiculitis" of the French School.

Hoffmann describes a case in this communication, in which sensory symptoms in the arms preceded motor symptoms by some months, in which the peripheral nerves eventually became definitely thickened (interstitial neuritis), and the characteristic symptomatology of a severe peripheral neuritis developed. The pupils and optic nerves remained normal, the Wassermann reaction was strongly positive, and there was a marked lymphocytosis in the

cerebro-spinal fluid. Under energetic antisyphilitic treatment a very pronounced degree of improvement occurred.

S. A. K. WILSON.

A REPORT OF TWELVE CASES OF MENTAL DISEASE TREATED
(597) **WITH SALVARSAN, WITH SPECIAL REFERENCE TO BLOOD-PRESSURE DURING INJECTION.** C. R. M'KINNISS, *Med. Record*, 1912, ii., p. 100.

THE writer found that there was very little change in blood-pressure even when 195 c.c. was injected. Two cases of cerebral syphilis were much improved by treatment, two cases of general paresis showed slight improvement, but no improvement occurred in six other cases of paresis, one of pseudo-paresis, and one of dementia præcox. In the writer's experience, salvarsan had no advantages over mercury in the treatment of syphilis.

J. D. ROLLESTON.

NEOSALVARSAN. (Le Neosalvarsan.) A. LEVY-BING and L.
(598) DUROEUX, *Gaz. d. Hôp*, No. 66, Juin 11, 1912, p. 987.

THE authors have used this preparation of arsenic for 100 injections, and find that it is superior to salvarsan. It is a neutral preparation both from a chemical and physiological point of view, does not coagulate the blood albumens, and is not decomposed by the alkaline salts of the blood. It is an exceedingly soluble yellow powder, best dissolved in cold sterile water, and circulates as a soluble salt and thus penetrates the organs, lesions and even to the lymphatic system. The dose varies between 0·45 and 0·95 of a gramme dissolved in 100 or 150 c.c. of water, the primary dose is usually 0·6 gramme followed by a larger one in an interval not less than six days. The injection is slowly given into a vein, and there is usually immediate numbness of the arm, and sometimes tingling of the forearm and hand. Later reactions are similar to these obtained with 606, headache, stiffness in back and limbs, nausea and vomiting, and sometimes diarrhœa, all however very much less intense and more evanescent than with the latter drug. Temperature often rises one or two degrees. In primary syphilis cicatrisation of the chancre is present in two or three days; the induration persists longer, but the glandular enlargement clears up better than with 606. The secondary symptoms, especially the rash, disappear more slowly. It is also efficacious in tertiary lesions. In short the authors find that neosalvarsan is easier to use, more tolerated by the patient, but sometimes its therapeutic action is a little less rapid than with salvarsan.

WINIFRED MUIRHEAD.

WEITERE ERFOLGE DER INTERNEN GALVANISATION DER
(599) **MUNDHÖHLE BEI DER NEURALGIE DES N. TRIGEMINUS.** **(Results of galvanisation through the mouth in trigeminal neuralgia.)** VITEK, *Neurol. Centralbl.*, August 16, 1912, p. 1023.

A SPECIALLY constructed electrode (anode) was used and placed inside the mouth, against the mucosa, over which it was stroked, while the other electrode was placed over the infraorbital foramen (for the second branch) or the inframaxillary foramen (for the third branch). A current of 1½ ma. was passed, for some ten or fifteen minutes. The writer apparently obtained excellent results, in some cases amounting to a cure. S. A. K. WILSON.

WHAT IS EPILEPSY? CARL D. CAMP, *Pediatrics*, Vol. xxiv., No. 9,
(600) Sept. 1912, p. 547.

THE following definition is suggested: "Epilepsy is a morbid condition characterised by attacks of the phenomena of abnormal hyperfunction of some or all parts of the cerebral cortex, frequently accompanied by unconsciousness, never under the control of the will or volition." A. NINIAN BRUCE.

ON POST-PAROXYSMAL ALBUMINURIA AND POLYURIA IN
(601) **EPILEPTICS.** **(Über die post-paroxysmale Albuminurie und Polyurie der Epileptiker.)** HALLAGER, *Ztschr. f. d. ges. Neurol. u. Psychiat.* (Orig.), Bd. x., 1912, S. 297.

THE author repeats his views on this subject. It has been shown by experiment that artificially induced epilepsy in animals is accompanied by anæmia of the kidney, and that this results in a temporary albuminuria. Author cites the case of a man who suffered from heart disease and whose heart stopped for short periods, this being associated with unconsciousness, and followed by temporary albuminuria. In cases of epilepsy, according to the author's experience, albumen is always present in the urine after an attack. The amount is very small, and is only present for a short time. The phenomenon is more especially evident in cases of epilepsy accompanied by chronic nephritis. In such cases the fit is followed by a constant and easily demonstrable increase in the albumen. The author concludes that the condition is caused by a temporary anæmia of the kidney from constriction of vessels. As regards the increase of urine this has been demonstrated by the author in cases observed for months at a time. The cause is probably excessive dilatation of the kidney vessels following the constriction. JAMES MILLER.

NEURO-PSYCHICAL DISTURBANCES FOLLOWING THE ITALO-
(602) **TURKISH WAR. (Turbi neuro-psichiche consecutive alle commozioni della guerra Italo-Turca.)** G. D'ABUNDO, *Riv. ital. di Neuropat., Psychiatr. ed Elettroter.*, 1912, v., p. 257.

D'ABUNDO examined fifty invalided soldiers whom he classifies as follows: Epilepsy before going to Libya, but not notified officially, 7 cases; epilepsy developed in Libya, 8 cases; neurasthenia before going to Libya, 5 cases; neurasthenia developed subsequently, 10 cases; psychoses developed in Libya, 18 cases; pre-existent psychoses, 2 cases.

All the soldiers who developed these manifestations had a morbid heredity, or showed evidence of a neurotic disposition. In some cases recent syphilis or alcoholism represented a true hereditary equivalent.

No specific neuro-psychopathic form was found, but a depressive state with psycho-sensorial disturbances, chiefly visual, was frequent.

Brief histories of 20 cases are given. J. D. ROLLESTON.

WOUND DIPHTHERIA COMPLICATED BY PARESIS OF ACCOM-
(603) **MODATION AND MYOCARDITIS. (Saardifteri ledsaget af Akkommodationsparese og Myocarditis.)** C. SAGGAU, *Hospitalstidende*, 1912, lv., p. 669.

THE patient was a girl, aged 12 years, in whom these complications occurred about a month after she had wounded her foot with a splinter. The palsy cleared up in about three weeks without treatment. No bacteriological examination was made, as diphtheria was not diagnosed until after the onset of the palsy.

J. D. ROLLESTON.

SURGICAL INTERVENTION IN PARALYSIS AGITANS. (Über
(604) **Chirurgischen Eingriff bei Parkinson'scher Krankheit.)** LERICHE, *Neurol. Centralbl.*, Sept. 1, 1912, p. 1093.

IN a typical case of paralysis agitans the writer persuaded a surgeon to divide the fifth, sixth, and eighth cervical posterior roots on both sides, apparently under the impression that such a procedure might benefit the patient. The result: "Sein Tremor ist weniger intensiv, aber seine Rigidität hat sich nicht verändert." The patient, however, fortunately seems to have enjoyed a sense of well-being since the operation. S. A. K. WILSON.

THE EYEBROW IN ITS RELATIONS TO THE THYROID GLAND.
(605) **(Le sourcil dans ses rapports avec le corps thyroïde.)** M. L. MICHEL, *Thèses de Paris*, 1911-12, No. 367.

A VARYING degree of supraciliary alopecia is a sign of thyroid incompetence. This "eyebrow sign" (*signe du sourcil*) is of diagnostic importance in detecting cases of hypothyroidism, and is an indication for thyroid opotherapy. Conversely hypertrichosis of the eyebrows is often associated with hyperthyroidism. Illustrative cases are given from the Rothschild Polyclinic.

J. D. ROLLESTON.

THE ANATOMICAL AND CLINICAL STUDY OF PLURI-
(606) **GLANDULAR SYNDROMES. (Contribution à l'étude anatomo-clinique des syndromes pluriglandulaires.)** M. SOURDEL, *Thèses de Paris*, 1911-12, No. 428.

SOURDEL proposes a new classification of these syndromes based entirely on the clinical appearances, as the anatomical findings in his necropsies did not correspond with the symptoms, and divides them into five classes. The first is characterised by premature senility, associated with frigidity, impotence, progressive asthenia, and digestive troubles. The second is characterised by cutaneous lesions in general, and especially by marked troubles of pigmentation. The third class resembles myxœdema. The fourth has some of the characteristics of acromegaly. The fifth is characterised by hypertrophy of the adipose tissue and genital troubles. All these classes are closely related to each other, and transitional forms may be met with.

The thesis contains the histories of sixty-four cases, eleven of which are original. J. D. ROLLESTON.

THE COMBINED USE OF THE THYRO-PARATHYROID, PITUI-
(607) **TARY, OVARIAN, AND TESTICULAR EXTRACTS.** FRANK R. STARKEY, *N.Y. Med. Journ.*, 1912, i., p. 1257.

STARKEY used this polyglandular extract (pituitary, 1 part; thyro-parathyroid, 2 parts; ovary, 10 parts; testis, 10 parts) in 480 cases by intramuscular injection without any unpleasant reaction or even local irritation. The cases were divided into (1) acute diseases, *e.g.*, typhoid, pneumonia, influenza, scarlet fever, and tuberculosis, and (2) chronic diseases—(*a*) Those in which adynamia was the essential feature, *e.g.*, neurasthenia and melancholia, atonic constipation, sexual impotence and senile debility; (*b*) Those in which in addition to adynamia toxæmia was present, *e.g.*, epilepsy, rheumatism, arthritis deformans, paralysis agitans, and chorea; (*c*) Disorders of menstruation.

Illustrative cases are recorded, and the writer comes to the following conclusions:—The polyglandular extract has a markedly stimulating effect, in acute diseases with low blood-pressure it tides the patient over the most critical stage. It appears to be almost a specific for neurasthenia. It stimulates mental, nervous, and muscular activity as well as general metabolism. It augments the contractile power of the cardio-vascular system, and is, therefore, contra-indicated in cases of high blood-pressure. It increases the action of other drugs, such as arsenic, mercury, iodides, and salicylates (*cf. Review*, 1908, vi., p. 669). J. D. ROLLESTON.

PSYCHIATRY.

THE PROGNOSIS IN DEMENTIA PRECOX. A. W. STEARNS, *Boston* (608) *Med. and Surg. Journ.*, Vol. clxvii., No. 5, Aug. 1, 1912, p. 158.

FROM 1901 to 1905 inclusive, there were 2,589 admissions to the Danvers State Hospital, of which 395, or 15·2 per cent., had been *determined* to be cases of dementia præcox; of these 151 were male, and 244 female. It was found that 187 of them had been discharged from the hospital, 92 (47 per cent.) not improved, 44 (23·5 per cent.) improved, 38 (20 per cent.) much improved, and 13 (7 per cent.) capable of self-support. 44 of these were re-admitted once, and 9 twice. 315 cases were fully located, of which 202 (64·1 per cent.) are now in an asylum, 75 (23·8 per cent.) have died, 8 (2·5 per cent.) are boarding out, 16 (5·0 per cent.) are at home apparently well, and 14 (4·5 per cent.) are at home demented. Of the 75 deaths, 44 resulted from respiratory disease, 29 being cases of pulmonary tuberculosis. Upon none of the apparently well group was the opinion of the staff unanimously in favour of dementia præcox, for the most part they were regarded as atypical depressions. A. NINIAN BRUCE.

DISTURBANCES OF SPEECH EXPRESSION IN SCHIZOPHRENIA.
(609) **(Zur Kenntnis der Störungen des sprachlichen Ausdruckes bei Schizophrenie.)** ZINGERLE, *Neurol. Centralbl.*, March 1, 1912, p. 290.

THE author describes a case in which the patient, a man of 35, attributed to ordinary everyday words an entirely different meaning from their accepted meaning, so that his speech was unintelligible although he used familiar language. To each syllable of such a word as "academy" he gave a special meaning, and the author prints a long explanation supplied him by the patient of the devices which he employed to express himself. In addition he indulged in many neologisms, such as "Dahomay-schwarzopferqualen," etc. S. A. K. WILSON.

JUVENILE GENERAL PARALYSIS. (**Contribution à l'étude de**
(610) **paralysie générale juvenile.**) S. DANIOUCHEVSKY, *Thèses de Paris*, 1911-12, No. 415.

THE writer has collected 59 cases from literature in patients aged from 13 to 22: 25 were followed by autopsy, in 8 of which a naked eye examination only was made, and in 17 a microscopical examination also. 4 original cases are added, 2 in women both aged 20, and 2 in men aged 20 and 21. Attention is drawn to the frequency with which juvenile general paralysis is associated with infantilism due to lesions of the thyroid. Improvement was produced in one case by thyroid extract. J. D. ROLLESTON.

THE ETIOLOGY OF DEMENTIA PARALYTICA. W. FORD ROBERT-
(611) SON, *Lancet*, Sept. 28, 1912, p. 872.

THE author considers that "in his judgment a satisfactory case has been made out for no more than this—namely, that previous infection by the treponema pallidum strongly predisposes to the development of dementia paralytica and tabes dorsalis." He then briefly summarises the evidence that shows a connection between infection by a bacillus of the diphtheroid group and dementia paralytica. If hæmoglobin agar be used as the culture medium, it can be shown that the *Bacillus paralyticans* is constantly present in the genito-urinary tract and the nasal mucosa of the general paralytic. In tabes there is always in the early stages an infection of the genito-urinary tract by a similar micro-organism; in the later stages this bacillus may be entirely displaced by a coliform one. The nasal infection in general paralysis can be traced along the lymphatics through the base of the skull to the intracranial lymphatic system, and a culture of the bacillus can be obtained from the cerebrospinal fluid in many cases. Intraspinal injections of living cultures of the *Bacillus paralyticans* in rabbits has produced lesions in the cord identical with those that occur in the brain of the general paralytic.

Infection of the genito-urinary tract of rabbits with this bacillus has produced ataxia and paresis after some months, *e.g.*, out of sixteen, ten developed paresis, and further it has been proved that the disease has the characters of a contagious venereal one.

The bacillus does not grow on in the nervous tissue as a diphtheroid bacillus, yet the morbid process continues and leads to death. There are at least two possibilities regarding its mode of action. First, it may by its toxins initiate changes in the tissues which, when once started, are in their very nature progressive. This view is inadequate. Second, the bacillus may, perhaps, under anærobic conditions, develop into something else,

not readily recognisable, and this further stage may be the essential pathogenic agent, *i.e.*, these diphtheroid bacilli are not bacteria at all, but phases in the life cycle of a protozoon. This possibly explains the occurrence of minute bodies, sometimes rod-shaped, often irregular, in the lymphatic spaces round vessels and nerve cells in the cerebral cortex. These are special to general paralysis and do not stain by the usual methods, although they may be easily seen with the palladium methyl violet method, and have the morphological characters of amœbulæ. This method may also show the presence of delicate smooth rods occurring in the cerebral tissue but best seen in the cytoplasm of the nerve cell. Neither these amœbula bodies nor these minute rods are normal constituents of the brain, and they may be of the above nature.

Attention is also drawn to the presence in the brain of the general paralytic of cyanide-resisting bodies, although their significance is not understood.

The palladium methyl violet and the ammonio-silver method are described, and a short space is devoted to the question of treatment by means of vaccines and anti-serum.

A. NINIAN BRUCE.

PSYCHICAL DISTURBANCES AND GYNÆCOLOGICAL AFFEC-
(612) **TIONS. (Disturbi psychici ed affezioni ginecologiche.)** A. CRISTIANI, *Riv. ital. di Neuropat., Psichiatr. ed Elettroter.*, 1912, v., p. 289.

A RECORD of a case in a woman, aged 50, illustrating the absence of any relation between her psychosis (manic-depressive insanity) and her gynæcological affection (uterine prolapse).

J. D. ROLLESTON.

TREATMENT.

PITUITARY MEDICATION. (La Médication Hypophysaire.) L.
(613) LAGANE, *La Presse Médicale*, No. 59, July 20, 1912, p. 613.

THERE is a long discussion of pituitary syndromes and of some of the problems of inter-glandular relationships. The good effects of pituitrin are usually seen in the first few days of its use, are lost if it be prolonged, and often cease with its stoppage. It stimulates the unstriped muscle of the dilatator iridis, and of the bladder, uterus, gall-bladder, and intestine. Experimentally, it causes hyper-adrenalism: in very large doses hypo-thyroidism and thyroid atrophy: it also excites the secretion of the pituitary itself: it banishes the tetany that follows parathyroidectomy. Castration, in both sexes, causes pituitary hypertrophy: so also

does extirpation of the adrenals. Therapeutically, pituitrin usually increases cardiac force, raises arterial tension, provokes diuresis, and improves appetite. It has done good in the following conditions:—The hyper-thyroidism of pregnancy, menstruation, and the menopause; the tachycardia and tremor of Graves' disease, but not its exophthalmos; combined with ovarian or testicular extract and thyroid, it may benefit genital insufficiency and myxœdema; hypo-adrenalism (it is contra-indicated in hyper-adrenalism and high arterial tension); some symptoms of paralysis agitans, but not its rigidity; with ovarian extract it has done good in two cases of myasthenia gravis; occasionally it has relieved the aprosexia of adenoids, even without operation. Lagane gives to adults a daily dose of 10 to 30 or 50 cg. of dry whole-gland extract of ox, calf, or pig; or 10 to 40 of the infundibulin: to a child one-third or fourth of adult dose, according to age: he gives 10 cg. cachets, preferably during meals. Thaon advises avoidance of pituitrin if the kidneys be diseased, and Cushing reminds us that it contains a depressor as well as a pressor substance. But Lagane says that Rénon and Delille, and others who have used it extensively, have never seen any bad results. Lagane finds it useful in convalescence from acute infective diseases. He has no reference to the galactagogue effect of infundibulin discovered by Ott and Scott (1910), and confirmed by Schäfer and Mackenzie (1911).

LEONARD J. KIDD.

Reviews.

(614) **VORLESUNGEN ÜBER DEN BAU DER NERVÖSEN ZENTRAL-ORGANE DES MENSCHEN UND DER TIERE**, für Ärzte und Studierende, von Prof. Dr LUDWIG EDINGER, arzt. Direktor des neurologischen Institutes in Frankfurt am Main. Erster Band: das Zentralnervensystem des Menschen und der Säugetiere. Achte umgearbeitete und sehr vermehrte Auflage. Mit 398 Abbildungen und 2 Tafeln. Leipzig: Verlag von F. C. W. Vogel, 1911. Pp. 530. Price, paper, M. 18; bound, M. 19.75.

THE eighth edition of Professor Edinger's familiar "Vorlesungen" is assured of a hearty welcome from neurologists the world over. Its pages are an index of the results of the ever-increasing activity of neurological research, a reflex of the health and vigour of that department of scientific investigation. From small beginnings the book has grown until in its present form it consists of a handsome volume of some 530 pages (with almost as many illustrations as pages) devoted almost entirely to the anatomy, and, in a minor degree, to the pathological physiology, of the central nervous system. It contains some 130 more pages than the seventh

edition, which itself represented a considerable advance on its immediate predecessor, and about 130 more illustrations also. The reader will therefore readily appreciate how much fresh material has been incorporated, and how persistently its distinguished author has endeavoured to make his work comprehensive and up-to-date.

In his preface to the eighth edition Professor Edinger mentions in particular the chapters on the spinal cord and medulla as having undergone considerable amplification, while that on the visceral nervous system is practically new. But throughout the whole book there have been revisions and improvements which render the volume unique in the anatomical literature of the nervous system, and indispensable to the serious student of this region of human anatomy. Of course there are not a few points on which opinion is still divided as to the structure, connections, or functions of various nerve-paths or cell-groups, but there are comparatively few statements in the book to which exception may be taken. For instance, the questions of a thalamo-spinal tract, of descending spinal fibres from the cerebellum *via* the corpus restiforme, of tegmental fibres from the corpus striatum, and so on, remain uncertain, although the author describes such as apparently established. One would like to know, too, on what grounds the oval field of Flechsig, in the dorsal columns of the cord, is associated with the innervation of the bladder and rectum. Taken as a whole, however, we repeat that these "Vorlesungen" represent the high-water mark of neurological research, and in them the neurologist will find a wealth of information, methodically arranged and attractively expressed.

The general get-up of the book leaves nothing to be desired. The type is unusually good: the illustrations are, many of them, really admirable, and their reproduction does the greatest credit to the printers and publishers. Those that are coloured are conspicuous by their clearness and simplicity. In Fig. 42 "putamen" is apparently a slip for "pulvinar," and in Fig. 45 "oblongata" is misprinted. S. A. K. WILSON.

LES MANIFESTATIONS FONCTIONELLES DES PSYCHO-
(615) **NÉVROSES: LEUR TRAITEMENT PAR LA PSYCHOTHÉRAPIE.** Par J. DEJERINE, professeur de clinique des maladies du système nerveux à la faculté de médecine de Paris, et E. GAUCKLER, ancien interne des hôpitaux de Paris. Paris: Masson et Cie, Éditeurs, 1911. Pp. 561, avec une planche hors texte. Price, fr. 8.

THIRTY years of contact with the neuropath enables Professor Dejerine to speak with a ripeness of judgment and a sympathetic insight bred only of experience. Concentrating his attention on

the somatic expressions of psychical instability and upset, he shows clearly how potent is the influence of introspection, auto-suggestion, and emotion in giving rise to symptom-complexes often closely resembling organic states, and demonstrates the psychological mechanism involved. In the preface, written by himself, he refers to the unsatisfactory nature of his early results by the method of Weir Mitchell, mainly because the therapeutic essays were concerned with physical means only, such as isolation, rest in bed, suralimentation, douches, massage, electricity, and so on, and there was always awanting that element of moral persuasion that he has now come to regard as a *sine qua non* for successful handling of the neuropath. He points out, however, that his treatment differs materially from that of Dubois of Berne, who holds that psychotherapy should be "rational," that is to say, based on dialectic, on argumentation, and on that alone. In well chosen words Professor Dejerine explains how reasoning, in itself, is indifferent. An appeal to the reason cannot energise, cannot create, cannot change "un état d'âme," unless an emotional element is superadded, unless the personality of the individual whose mentality one seeks to alter is touched, impressed, affected by the physician. According to him successful psychotherapy is erected on the basis of the beneficial influence of one being on another. An idea is of itself cold, and has no dynamic wherewith to infuse fresh life unless it is accompanied by that emotional appeal which invites acceptance and ensures conviction. "C'est ici ou jamais le cas de rappeler l'eternel adage: c'est la foi qui sauve . . . ou qui guérit."

With the collaboration of Dr Gauckler Professor Dejerine has written a book expounding these principles and exemplifying them by various clinical instances, and it is difficult adequately to express the large-heartedness and intimacy of contact which pervade the pages. The language is choice, and admirable in its lucidity; and while the book is replete with practical suggestions, the reader will find that what appeals in it is the desire, not indeed consciously expressed, but present by implication, that the physician who deals with the neuropath should not merely subject his patient to painstaking examination, but should at the same time, by the interest he takes in him, become "un peu un ami."

S. A. K. WILSON.

THE SEXUAL LIFE OF THE CHILD. By Dr ALBERT MOLL. (616) Translated by Dr EDEN PAUL. Allen & Co., London. 339 pp. Price 15s.

EVER since Freud, some fifteen years ago, began to publish his observations and conclusions showing that the sexual life of the

child not only existed, as had previously been denied, but was of an unexpected richness, interest in the subject has been gradually increasing, and its importance for both pædagogy and psychopathology has become more and more realised. Moll attempts here to give expression to this general interest by devoting to the subject a volume of considerable dimensions.

The chapter headings will give some notion of the ground covered: I. Introductory and Historical. II. The Sexual Organs —The Sexual Impulse. III. Sexual Differentiation in Childhood. IV. Symptomatology. V. Pathology. VI. Etiology and Diagnosis. VII. Importance of the Sexual Life of the Child. VIII. The Child as an Object of Sexual Practices. IX. Sexual Education.

Moll points out that in the past too much attention has been paid the childhood sexual life of perverts to the neglect of that of the normal, and combats, with right, the resulting conclusion that sexual manifestations in childhood are a sign of morbid development; he compromises, however, at the age of seven, holding quite arbitrarily that before this time "the occurrence of manifestations of the sexual impulse must arouse suspicions of the existence of a congenital morbid predisposition." He admits that voluptuous sensations may occur in the normal before this period, but would not call them sexual (though after the age of seven he would). The mutual examination and exhibition of genital organs he thinks is dictated by curiosity, not by the sexual instinct, though the same acts later on are of course sexual. Nevertheless he fully admits the general importance of the subject: "When we consider the enormous importance and great frequency of the sexual processes of the child, we are positively astounded at the manner in which this department of knowledge has been ignored by those who have written on the science and art of education and by those psychologists who have occupied themselves in the study of the mind of the child."

Since Freud is the only author who has proffered a theory of sexual evolution in the individual, and it is he who has brought the childhood period to the foreground of interest in this respect, one naturally anticipates that in a book devoted to this subject Freud's conclusions will receive due consideration, or at least that they will be properly described. In this anticipation the book disappoints us, for Freud is referred to only quite incidentally and his views are nowhere discussed; indeed the author allows himself to make the remarkable statement that "Freud has not systematically studied the individual manifestations of the sexual life of the child." A few of his isolated conclusions are casually quoted, only to be met with a flat denial of their validity, the author not finding it necessary to give any reasons or bring forward any evidence for

his opinion. His pointed endeavour to depreciate Freud sometimes carries him to unintended extremes, of which the following is an example: In discussing the subject of non-genital erogenous zones (p. 91) he speaks of the anal region and then adds, "Other erogenous zones are also at times found in children, but not often," evidently forgetting the lips, which surely is the least unequivocal of these zones in every human being. He deals with Freud's view that repressed sexuality is the cause of morbid anxiety merely by discussing whether anxiety can lead to sexual excitation. The personal feeling constantly interpolated on the subject of Freud's work greatly detracts from the scientific value of the book.

Some, though only a part of, his divergence from Freud is due to the different conceptions of sexuality held by the two writers. Whereas Freud attempts genetically to trace adult sexual manifestations to their earliest origins in the individual, and maintains that it would be unreasonable to expect to find the sexual life of the child to be the same as that of the adult, Moll proceeds to the opposite extreme: he not only refuses to regard as sexual in the child any act or function that is not obviously so also in the adult, but, as we have seen, even denies this term to a number of acts which in the adult would certainly be called sexual. Freud therefore widens the conception of sexuality, while Moll narrows it. Another important ground for divergence is the question of method. Moll says that there are three methods available for such a study—(1) experiment (castration, &c.); (2) the observation of children, which is largely vitiated by both the child's inability to describe his sensations and his feeling of shame towards any adult; (3) the later memories of adults. The latter, however, are seriously imperfect, both in extent, the greater number being forgotten, and in accuracy, important subsequent distortions having falsified them in important particulars Moll sees no way out of this dilemma, and therefore has to content himself with material that is of necessity poor from a scientific point of view. Freud, on the contrary, having devised an exact method, with a reliable technique, namely psycho-analysis, has been able to correct both these imperfections in the later memories, *i.e.*, to resuscitate what had been forgotten, and to correct what had been distorted. Moll, it is true, will have nothing to do with psycho-analysis, which he says consists in making arbitrary interpretations at will, but it is throughout plain that he is talking without any knowledge whatever of the method, so that his opinion of it is of little interest.

The book as a whole contains many useful and valuable sections, notably those on the legal and educative aspects of the subject, and it may serve to direct attention to an important and

neglected field of study; it cannot, however, be regarded as having any great scientific value. The translation is as a rule accurately done, and is written in a clear and good style; Dr Paul has evidently taken great pains with his task, as is shown by for instance the useful explanatory footnotes he has added on linguistic and other difficulties. Among the corrections that should be made in a future edition are the following: the title of Freud's "Drei Abhandlungen zur Sexualtheorie" ("Three Essays on Sexual Theory") is incorrectly quoted in German, and incorrectly translated (p. 14); Abraham's paper on "Das Erleiden sexueller Traumen, &c.," is curiously rendered as "The Ill Effects of Sexual Dreams," *Träume* (dreams) being confounded with *Traumen* (traumata). ERNEST JONES.

Meeting of Congress.

THE meetings of the International League for the Study of Epilepsy were held in Zürich on 6th and 7th September. Delegates were present from the American Association and from the Russian Government, as well as neurologists from Switzerland, Germany, France, Austria-Hungary, Denmark, and Holland.

Upon 6th September the chief subjects of discussion in the forenoon were the influence of a diminished sodium chloride diet in the treatment of epilepsy, and alcohol as a cause of epilepsy. Dr. A. Ulrich (Zürich), Prof. J. Donath (Buda-Pest), Prof. H. Claude (Paris), Dr. Anfimow (St Petersburg), and Dr. R. Balint (Buda-Pest) took part in the discussion. In the afternoon the results of the surgical treatment of epilepsy, symptomatic and particularly idiopathic, were discussed, and Prof. Kümmel (Hamburg) and Prof. Sauerbruch presented cases. Dr. Veit (Wuhlgarten) spoke on epileptic semi-conscious states, and Dr. Leubuscher (Berlin) submitted a series of new methods of treatment based on an exhaustive review of his own observations. Prof. Forel (Yvorne) and Dr. Bratz (Dalldorff) narrated some of their experiences. In the evening Dr. Weeks (New Jersey) reported a large number of epileptic pedigrees, and Dr. Muskens (Amsterdam) demonstrated by means of tracings and lantern slides, a number of reflex appearances in invertebrate and vertebrate animals which were related to epileptic phenomena.

On 7th September the discussions on the treatment of epilepsy and alcohol as a cause of epilepsy were continued, while that upon the operative treatment were held over until the next meeting of the League. Dr. Wysz (Zürich) referred in a lucid paper to the pharmacological foundation of bromine-therapy; Toulouse and

Piéron referred to investigations which they had undertaken to discover the factors causing the increased number of epileptic cases, and Claude spoke upon a new line of epilepsy research, namely disturbances of the glands of internal secretion.

The papers are published *in extenso* in *Epilepsia*, the official journal of the League, which is sent to members of the League (25 francs yearly, post free).

Dr. Weeks was elected President of the League in place of Prof. Tamburini (Rome) who retired. Authority to form new national committees in France, Germany, and England was conferred on Dr. H. Claude, Dr. Bratz and Dr. Veit, and Dr. Aldren Turner. The "American Association for the Study of Epilepsy" agreed to become a national committee retaining their own organisation. Herr F. W. Cremer (Amsterdam) was elected Treasurer.

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Review
of
Neurology and Psychiatry

Original Articles

NERVE FUSION AND ITS BEARING ON THE TREATMENT OF INFANTILE PARALYSIS.

By HENRY O. FEISS, Edinburgh.

In a previous work (1) I have shown that if two normal nerves are tied together so that their sheaths are thoroughly crushed, they will grow together at that point, and fibres will pass through the scar and enter the neurilemmar sheaths of both nerves below the scar. Thus a true crossing of fibres is obtained and stimulation of one of the nerves above the scar will usually evoke responses in the muscles supplied by the other nerve as well as by itself.

The examination of such a scar shows that this condition is at least partly mechanical. After ligaturing there is marked cell proliferation, and fibres sprouting from the central nerve segments are forced between the cells so as to be obliged to take almost any new direction, thus making new connections in the peripheral nerve segments, in which as a direct result of the ligaturing complete degeneration had taken place for the time being.

Therefore at the scar one finds a complete change in nerve pattern. In the nerves below the scar the anatomical nerve pattern remains precisely the same as before the operation, but physiologically many of the newly regenerated fibres take a new relationship to the nerve centres in the cord. The function of the fibres in the peripheral segments is never changed, for that always depends on the peripheral end organs of the sheaths which they enter, but a new path by which central control is exercised is provided.

When one compares the older method of nerve anasto-

mosis by suture with this method of fusion, one finds that ultimately the results of the two methods are practically the same. The fallacy of the suture method has been that operators have supposed that by uniting one nerve to another, and by accurately bringing the segments together, fibres would grow directly from one segment into the other. Even in the case of a single nerve where only the cleanest cut has been made is such a realisation impossible. There always forms a neuroma made up of proliferated cells which prevents the united nerve ends from remaining in accurate apposition. Hence, the newly regenerating fibres must pass from the upper segment through the cells in the neuroma, and then finally enter the peripheral segment.

Therefore in dealing with pathological conditions it is well to bear in mind three points which have been gleaned from the study of normal nerves—first, That where two nerves are united a direct passage of fibres from one to the other is not possible, owing to the scar; second, That although the scar itself shows anatomical change, the anatomical nerve pattern of the peripheral nerve segments is unalterable, no new neurilemmar sheaths being formed; third, That no matter what rearrangement of fibres is obtainable in the scar, the function of the regenerating fibres must always depend on their peripheral end organs although a new path of excitation may be laid down.

Given a case of Infantile Paralysis—the significant feature is the motor paralysis of a given part, and the problem which draws our present attention is whether such a condition may be bettered by distorting the nerve pattern of the nerves which supply the affected muscles.

If one examines properly stained cross-sections of the peripheral nerves of a part recently paralysed by Infantile Paralysis, one will usually note that the whole nerve is not affected, the empty neurilemmar sheaths which represent degenerated fibres being scattered irregularly throughout various fascicles, so that separation of the good bundles from bad ones is impossible. One reason for this is that the central cord lesion usually affects motor neurones chiefly so that many sensory and sympathetic fibres escape. Another reason is that the cord lesion is as a rule more or less irregular, therefore one seldom sees a complete paralysis of a given muscle or group of muscles, but rather a partial paralysis of a number of muscles lying rather close together.

After the paralysis, atrophy sets in quickly and certain muscles take on a condition which suggests complete paralysis, although some good muscle fibres remain. As regards the nerves, the empty neurilemmar sheaths gradually become sclerosed and presently the whole nerve atrophies until later the remains of these old sheaths are apparently obliterated. The final appearance of the cross-section falsely suggests that of a normal nerve, because the degenerated sheaths are no longer to be seen. As a matter of fact it is only the residual fibres that are present and of these only a few may be motor.

Consequently there are two aspects of the palsy which should be considered. First, the aspect of the nerve before atrophy has set in when the empty neurilemmar sheaths are still apparent; second, the aspect when these empty sheaths are closed up and the nerve has shrunken to very small size.

The question is whether the degenerate sheaths seen in such nerves may be made to regain new axis-cylinders and myelin sheaths.

It is plain that the method of nerve anastomosis by means of suturing an apparently good nerve into an affected one, could only apply in cases where such nerves are to be identified. As has been explained, such a condition is rare and it is never safe to cut a good nerve from one peripheral connection and to attach it to another, owing to the new paralysis thus evoked. Even if this were of slight import the final result, as has been stated, is always dependent not on direct ingrowth of fibres from one cut nerve into another but on the passage of fibres through an unavoidable neuroma. Therefore, in cases of this sort the most advisable procedure to incite fibres to enter the empty sheaths must necessarily be to face this anatomical fact of neuroma formation and to attempt to take advantage of it. The method of nerve fusion as tried on normal nerves would seem to be at least theoretically applicable to the condition. If a practical result is to be achieved it would necessarily depend on the fact that the regenerating fibres from the central segments form sprouting ends, and that these force a passage in all directions between the proliferated cells so as to emerge finally into the lower nerve segments, and eventually fill up all the empty sheaths contained, as has been shown to be the case in dealing with normal nerves.

Is such a hope borne out by actual results? I will give my experience in two cases—one clinical, and the other experimental.

The first is a case of Infantile Paralysis and has been reported before (2). It applies to the second aspect of the condition seen in the peripheral nerve, that is when marked atrophy had set in. The case was one where the paralysis was of several years' standing and the residual paralysis affected the distribution of the external popliteal nerve chiefly, with but little contracture of the muscles. A fusion of the whole sciatic was attempted. As was to be expected degeneration of the whole nerve resulted from the operation. But when regeneration set in it was found that the very same clinical picture returned as before the operation, suggesting that only those fibres which had escaped the original palsy had regenerated after the operation and that few if any of the sclerosed tracts had become reneurotised.

The second case applies to the first aspect of the condition, that is before atrophy has set in. It is the case of a dog in which I had divided two important anterior roots in order to bring about the initial paralysis. By this operation I produced a distinct motor palsy of the leg, so that the dog dragged his paw. After waiting several months, I tested the popliteal nerves with the faradic current and found that the external popliteal nerve failed to respond. I then fused the whole sciatic and waited the greater part of a year. A slight improvement of function was noted in the lamed leg. Testing the nerves again, some excitability in the external popliteal was noted.

Anatomical examination of the nerves below the neuroma showed that many sheaths had failed of reneurotisation. A nerve fibre count was made above and below the neuroma—the result showed no increase but rather a slight decrease in number below, suggesting that only those sheaths which had escaped degeneration after the original root lesion had become reneurotised after the fusion. But that some change had been brought about was plain; this was shown both by the physiological tests and by the actual anatomical appearance of the scar. It was plain that after fusion one could bring about a change similar to that brought about by fusion of normal nerves, but that such a change could apply only to such fibres as were good before the fusion.

Therefore the presence of empty sheaths does not in itself

signify any power of reneurotisation, even when the emptying is relatively recent. The reason for this is very likely the absence of chemotaxis, as it is called. This refers to the attraction of certain peripheral nerve sheaths for only certain kinds of regenerating nerve fibres, and explains why, after simple division of a normal nerve, the divided fibres will find their original sheaths. According to Forssmann (3), this attraction depends to a great extent on the actual presence of nerve substance in the peripheral segments. This would explain in the above case why only such fibres as were good immediately before the fusion became refilled afterward.

Therefore it is seen that although complete restoration of function with additional physiological activity may be obtained by the fusion of normal nerves, nothing like such complete restoration seems to ensue after fusion of nerves containing degenerate fibres, although some alteration of the residual fibres is brought about in the scar.

One author (4) also experimenting on dogs came to different conclusions. He also produced his original lesion at an earlier sitting. He cut certain cranial nerves and after an interval of some months sutured other nerves to the degenerated peripheral stumps. He reports some functional success but gives no physiological or anatomical data. But there is a great difference between a lesion in a peripheral nerve and one in or near the central nervous system, for the closer to the cell of origin a nerve is interrupted, the less likelihood there is for regeneration, and in Infantile Paralysis it is a lesion directly affecting the cells of origin with which we have to deal. As regards animal experiments of others, such as Kilvington and Osborne (5), Langley and Anderson (6), Spitzy (7), &c., these all dealt with normal nerves, and the lesion and nerve anastomosis were done at one and the same sitting as in the cases of normal nerve fusion which I myself did. In Infantile Paralysis one does not consider secondary operations until sufficient time has elapsed after the original attack for the usual spontaneous recovery to take place. If one operates earlier, how is one to know how much if any of the improvement is due to the operation, and how much to this spontaneous recovery?

Coming now to a consideration of clinical reports of successes with nerve anastomosis in the palsies produced by Infantile

Paralysis, I believe that all such reports must be considered with greatest caution. In the first place, anatomical and physiological evidence is almost always lacking. In the second place, most clinicians subject the muscles the nerves of which have been operated on to a course of vigorous massage, and after a while discern some improvement. This improvement may be due to the massage. Finally the effect of such after treatment in which the patient is encouraged to use the affected limb more than before the operation, is often to bring about a vicarious activity of certain good muscles suggesting improvement of the paralysed muscle. Such vicarious activity can readily be brought about by mechanical procedures and by training. One must rule out all improvement due to such factors before one can say that the operation was the cause of the improvement.

Conclusions.

1. Peripheral nerves containing degenerate fibres may, after local nerve distortion, show some change in central control in the sense that some of the residual fibres may make new connections with cord cells, but the anatomical nerve pattern below the scar remains much as before, few if any of the empty sheaths being refilled. Whatever new central connections are made, the physiological and functional properties of all fibres must depend on the peripheral end organs of the sheaths which these fibres occupy.

2. Clinical observations after nerve anastomosis must exclude all improvement due to spontaneous recovery, massage or muscle training.

3. Basing my opinion on the authoritative experiments of others, and also on my own work on nerve fusion, I consider that there is, as yet, no sufficient experimental basis by which nerve anastomosis for the palsies of Infantile Paralysis can be justified.

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EPILEPSY AND RHEUMATISM.

By J. CECIKAS, Athens.

The study of epilepsy, while so successful on many points of physiological pathology and surgery, has up till now failed to even solve the problem as to whether the originating cause lies strictly in anatomical lesions either directly or indirectly affecting the motor area, or whether these only represent one side of the question. It is a matter of fact that often, while the anatomical lesion in the motor area does not extend over the whole of that region, the irritation producing the epileptic attack does. Typical epileptic attacks, also, may arise from strictly localised tumours situated in a distant portion of the brain, and we are not justified in attributing this merely to an increase of pressure, because in other cases where the intracranial pressure has greatly risen, either slowly or suddenly, epileptic attacks have been absent. Neither do epileptic attacks typically ensue in all cases of infections and intoxications, which are known to cause epileptiform syndromes. It is thus evident that an unknown factor must be considered, and that is the individuality of the brain, which may be inherited or acquired and constant or transitory. There can be no doubt that this dynamic change lies in a lowered tonicity of the brain, the motor area and the associations that bring about consciousness—the most active parts of the system—being the first to succumb to abnormal irritation. But it is certain that even a highly predisposed brain would not give rise to such attacks without some definite lesion affecting it. And thus in every case of epilepsy it is necessary (*a*) to discover the special cause of the epileptic predisposition of the brain, and (*b*) to determine, besides the localisation, the nature and degree of the anatomical lesion. These two factors are intrinsically bound up together, and it pertains to minute clinical criticism to determine the part played by each.

Although the morbid anatomy of epilepsy has made great advance during recent years, it is not yet able to distinguish between causal and consecutive changes. The biopsical returns especially, which one might hope would settle our understanding of local relations in individual cases, do not as yet present a univocal meaning. Indeed, we see many cases of epilepsy recover

by simple trephining, perhaps as the result of the slight disturbance to the part; other cases, apparently in no way different, require removal of the surface of the motor area, and still others, identical in appearance to these, resist all such interference.

These and other facts seem to point to lesions of an inflammatory character, extending for a variable distance over the surface of the brain and passing into the substance for a variable depth between the elements of the brain which become impaired either in their nutrition or in their constitution. The course of this process may often be traced in each case by special features, and its nature indicated by kindred lesions in other organs.

Such conditions are particularly to be met with in cases following a rheumatic infection, of which the following is an example:—

A. B., aged 8, the third of six living healthy children of young, non-consanguineous parents. There was no evidence of morbid heredity on the side of the father. The mother's mother and one aunt died from tuberculosis. The patient's mother, who married at the age of 15, has suffered from migraine since early childhood. Two and a half years ago she had an attack of subacute articular rheumatism. The brother immediately younger than the patient shows a head which extends greatly upwards and backwards, his palate is very high and his left thigh displaced.

The patient was born at full time and labour was normal. He was quite healthy in his early childhood. He soon exhibited a vivacious character, which developed to a high degree. He sustained no traumatism, either physical or psychical. When 2 years of age he had an attack of measles which passed off without any complications. He remained in good health until January 1911, when he was laid up with an attack of tonsillitis; he had several relapses, the glands at the side of the throat became swollen and his health suffered severely. At the beginning of last February he lost the power of speaking while coming from school. His expression was that of a talking child, but he could only articulate a few words which he repeated again and again, interspersed with strange monosyllables. This disturbance passed off during the night and next day he returned to school and continued his studies until the beginning of March, when he again, without any apparent cause, became aphasic. His face also became paralysed on the right side, so that the cheek moved when breathing like a loose sail. These

symptoms soon subsided but returned a week later and then disappeared altogether. He again returned to school and remained well until the 18th of April, when, without any warning, he again became aphasic, accompanied this time by paralysis of the right side of the face and right arm, and with convulsive movements in the latter. After a short pause the convulsions reappeared, spreading to the right lower extremity, which became paralysed, to the homologous left extremity, and then became general. His mother does not think that he lost consciousness during this attack, because when asked if he suffered, he laughed; and she does not remember if he passed urine at this time. The convulsive attack did not return and next morning the aphasia and paralysis had disappeared. Since this attack the child has shown no nervous symptoms, but he has remained feeble and restless.

Present State: 29th June 1911.—The child is symmetrically developed; the cranium, face, ears, nose, palate and pharynx are normal. The character is vivacious and gay, the voice clear, the speech pure, the intelligence proportional to the age, the attention undistracted, the perception quick, and the reaction prompt. He is manifestly left-handed in writing, and in finer movements. The pupils are normal in form and symmetry, and react to light and to accommodation. The senses are normal, and all kinds of sensibility are unaffected. Movements of the face, tongue, pharynx, etc., and all the limbs are normal. There is no sign of tremor or of athesignosia, astereognosia, asynergia, or apraxia, and the muscular tonus is normal. There is no dermographism; the superficial reflexes are normal, but the deep are generally exaggerated, especially on the left side; light patellar tremor.

The plantar reflex on the left side is markedly extensor.

The gait has a broad base; the soles lie flat on the ground, and the toes, especially the great toe, are stretched out.

Percussion of the cranium elicits no abnormal sound or sensibility.

The child is thin but muscular; the skin thin, not dry. Pulse 96, rather small, and easily compressible. The cavities of the nose are normal. The tonsils are slightly swollen and dark red, and there are some dilated venules on the pharyngeal wall. A few enlarged soft glands could be detected along the anterior border of the sterno-mastoid and nowhere else. The percussion sound at the root of the lungs was quite normal. The lungs were unaffected,

there was no trace of the thymus gland, and the thyroid gland was not enlarged. The cardiac impulse was rather feeble and diffuse, and the dome of the left auricle projected slightly upwards. The heart sounds are somewhat diffuse; the first is replaced, preceded and followed by a short soft murmur, specially audible at the fourth left intercostal space just at the edge of the sternum. The second sound is heard much louder to the left of the sternum than to the right. The abdomen is perfectly normal, and the sphincters are unaffected. The urine contains no abnormal constituents. The appetite is rather poor, and the diet has consisted since January of meat and old wine. Much cacodylate has been injected.

I put the child on a diet of milk, yolk of eggs and vegetables. Sodium chloride was eliminated from his food and I ordered calcium and iron and friction under a wet sheet.

29*th December* 1911.—The child's nutrition has improved slightly and there has been no recurrence of any further attacks similar to the above. But he remains nervous and is aggressive towards his playfellows; he makes fearful jumps heedless of danger, and what especially astonishes people is that he laughs at everything and at nothing, and is himself exasperated to find that he involuntarily passes urine on these and other occasions. The plantar reflex still remains extensor and the circulatory phenomena as previously. A blood examination gives the following results: R.B.C. 4,200,000, W.B.C. 8,000, polymorphs 80 per cent., lymphocytes 18 per cent., and eosinophils 1·6 per cent., Hb 65 per cent.

This case shows first the dissociation of the centres for speaking and for writing. The attack of aphasia in combination with a right-sided paralysis leaves no doubt that the centres for speaking remained in the left hemisphere. On the other hand it is equally certain that the left-handedness proves that the centres for writing and for the finer movements of the hand are situated in the right hemisphere, and it is but right to conclude that these centres have been transferred, so to say, from the left to the right hemisphere, since they had been destroyed in the left hemisphere at an age when the corresponding centres in the right hemisphere were still unimpaired and capable of being developed by exercise. The feature which particularly distinguishes this case is the series of single syndromes so arranged by order of progression as to illus-

trate a successive extension of the disturbance of function of the motor area, the convulsive movements and paralysis, starting from the hinder end of the third frontal convolution on the left side and extending gradually over the whole length of the anterior central convolution. In addition, the syndrome, galoplegia-enuresis, shows that the lesion has extended deeper into the substance of the brain and involved the system cortex—corona radiata—central ganglia, which governs the mimic movements and the encephalic centre for the bladder; and the equivalents of aggressiveness and procursiveness trace the spread of the disturbance to the higher centres for psychical control.

The question now arises whether the lesion is confined to the left hemisphere. The exaggeration of the deep reflexes, most marked on the left side, might be attributed to the nervousness of the child; besides a reversion of reflexes may be found in cases of old hemiplegia. This also holds for the extensor plantar reflex which has been observed by its discoverer, Babinski, during and after an attack of genuine epilepsy. I have seen it in an epileptic youth eighteen days after an attack; probably in this patient there existed a state of *petit mal* masked by treatment. I think, however, it is more than probable that a lesion of the same nature and date as on the left hemisphere—early childhood or intrauterine life—affected the right hemisphere as well, involving the pyramidal tract at a level below the separation of the fibres to the facial nucleus, and that this lesion, although too insignificant to cause disturbance under ordinary conditions, became active when the tonicity of the nervous system was lowered during the attack.

Now this old lesion in the left hemisphere which destroyed the centre for writing, and which remained until lately silent, like that in the right hemisphere, might be thought to have become active as the result of some altered irritability of the brain supervening from external causes, such as learning, abuse of meat, use of alcohol, absorption of toxins from microbial processes in the pharynx, or from an endogenous intoxication such as acidosis. Numerous facts daily observed in the cliniques for epilepsy confirm this mode of production of the disease. But the order in which the epileptic symptoms developed in this case makes such a supposition improbable. The serial phenomena of inhibition and irritation of the motor centres, of disturbance of the mimic motility and of perturbation of the psychical sphere, presented in an order

of progression, point rather to a process which has impaired by degrees and at intervals the motor area and the deeper and broader associations of it through the corona radiata to the central ganglia and upon the system of afferent impulses. This supposition is proved to be true by a connective series of facts, namely, the relapsing tonsillitis, the adenitis which is evidence of the spread of infection to the lymphatic system, and the endocarditis which is the result of a blood distribution. These affections so grouped represent the *rheumatic family of diseases*, and any concomitant affection of the brain, unless of an embolic nature which can be excluded here, must be of a rheumatic nature and affect the lining membranes. The proof of this lies in its reappearance after a long period, its relapsing in short intervals, and the creeping character of the process. Meningitis, and especially its less severe form, meningism, are reported to be frequent complications of rheumatism and they will be found to be incomparably more frequent once the rheumatic character of such affections is recognised by a larger pathological field.

There is a class of disease (1) the rheumatic nature of which is to be presumed from their frequent association with articular rheumatism; it affects the same histological formation, namely the serous covering of viscera. This disease is multiserositis, the counterpart of multisynovitis. These two groups of the rheumatic family are frequently found together in varying degrees. Morbid anatomy can only show the end stages of the process, its course must be disclosed by clinical observation. The picture resulting from this combined study shows that the rheumatic process begins with necrosis of the endothelium-epithelium with proliferation of the subjacent connective tissue; the result may be a necrosis, or a patch of cicatricial tissue may be formed, or adherence may take place with the opposite membrane; both these alterations may be of various importance. The irritation may then spread to the rest of the connective tissue of the serous membrane, which, as filaments or septa, passes between the masses of functional cells or along the blood-vessels in the organs. Impairment of the nutrition of these cells first results; when the process has been more active, cirrhosis and atrophy of the organ ensues either gradually and slowly or frequently relapsing, this latter characteristic being peculiar to the process.

All the evidence tends to prove that the cause of pluriserositis

is of microbial origin. Professor Neusser found in one case (2) that the leucocytes in the exudate from the pleural cavity contained Gram positive granules which he considered to be remains of phagocytised cocci. Other observers have found pneumococci. I myself found in one case in the exudate removed from a thick pseudomembrane of the pleura (the needle did not pierce the lung) the *Micrococcus tetragonus* in all its various forms. But there is another feature specially characteristic of the etiology of pluriserositis and that is its occurrence in asthenic individuals. Some morbid heredity, tuberculosis or some similar affection, aplasia, or some acquired infection or intoxication was present in every case I observed. Professor Neusser, upon these facts and on the remains of the cocci, considers that multiserositis is due to some coccus of lowered virulence. The presence of the *Micrococcus tetragonus* in one of my cases, and in many other similar cases recorded in literature, although not recognised to be so, and the pre-existence of a lesion in some other organ, most commonly the lung, where the disease relapses, leaves no doubt of an anaphylaxis inherited, inborn or acquired, general or local, the presence of which allows this microbe, which under ordinary conditions would be unable to cause infection, to act efficaciously upon the endothelium and the subjacent connective tissue. In other cases attenuation of virulence of the acting microbe seems to take place by antagonism of micro-organisms—*i.e.*, in cases of mixed infection—or immunity is acquired by successive steps in the infection. This latter condition is specially peculiar to serositis multiplex just as it is to polyarthritis rheumatica. The number of cases of epilepsy in relation to this latter disease is very great, and it is undoubtedly by this relationship that epilepsy so frequently complicates heart disease. In a careful examination of the various organs in epileptics I have scarcely found one amongst ten in whom an affection of some other organ was not to be discovered, and a rheumatic diathesis has frequently been recorded in those cases characterised by nervous heredity. General feebleness, aplasia, tubercular or rheumatic family history, congenital or acquired infection or intoxication may thus be regarded as indicators, and their presence allows us to trace the history of a fully developed epilepsy back to its early stages. I have found more than one of these stigmata in nearly 90 per cent. of cases of enuresis, especially its mixed type (diurna and nocturna). In one case of

this latter type of enuresis in a child 7 years of age showing Duroziez' disease, I found an extensor plantar reflex on the left side. In this case the enuresis ceased after two months of treatment which comprised iron, a life at the sea-side and two injections of fibrolysin. The rheumatic chorea which so often accompanies articular as well as visceral rheumatic affections is a prominent example of a nervous disease of rheumatic origin.

Epilepsy as a sequel of meningeal affection has long been known, and thus we are able to understand those cases developing after typhoid fever with meningeal complications. In a case reported by Sainton and Chiray (4), epilepsy followed cerebro-spinal meningitis. In this case the cerebro-spinal fluid showed a marked leucocytosis at each attack. As this has also been observed by Mosny and Pinard, and by Jules and Roger in cases of genuine epilepsy, the authors consider that they are justified in considering that such cases also are of meningeal origin, being the remains of meningeal complications of infectious diseases during early infancy. In pluriserositis it is known that a leucocytosis with increase of polymorphs is constant; it was positive in the present case; and also in a case of multiserositis in a lady with involvement of the posterior cranial fossa, which I have described elsewhere (5).

Meningitis may be caused by various micro-organisms either primarily or secondary to some other primary lesion. Meningitis in its active state or by its sequelæ may cause epilepsy. The rheumatic type of meningitis is second to none in frequency in its capacity to cause epilepsy on account of its peculiar histological characters, and the diminution of tone in the affected brain; besides it is met with in after life in individuals originally feeble or weak, to say nothing of the close connection between rheumatism and nervousness which many observations tend to establish.

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Abstracts

ANATOMY.

ABSENCE OF THE AUDITORY CANAL AND OTHER ANOMALIES
(617) **OF THE EXTERNAL EAR.** J. A. PIRES DE LIMA, *Journ. of Anat. and Physiol.*, Vol. xlvii., October 1912, p. 1.

THE congenital occlusion of the external auditory canal is very rare. Apart from this case, the author has only found sixteen other cases in medical literature, some unilateral, some bilateral. The anomaly is produced by an evolutionary perturbation of the first branchial cleft of the embryo, and, at least in some cases, by the absence of the tympanic bone.

The absence of the external auditory canal does not necessarily cause deafness. A. NINIAN BRUCE.

FURTHER OBSERVATIONS ON THE DEVELOPMENT OF THE
(618) **SYMPATHETIC NERVOUS SYSTEM IN THE CHICK.** WILLIAMINA ABEL, *Journ. of Anat. and Physiol.*, Vol. xlvii., October 1912, pp. 35-72 (35 Figs.).

MISS ABEL used Cajal's silver nitrate method which she finds "infinitely superior" to the eosin hæmatoxylin used by W. His, junr. (1893-97), or the iron hæmatoxylin used by Kuntz (1909, 10, 11). The points of both agreement and disagreement with the work of both His and Kuntz are well set out in her discussion (pp. 64-69). She summarises her work thus:—

1. The sympathetic chain originates as an outgrowth from the spinal ganglia and the ventral part of the spinal cord.

2. A special sympathetic supply is formed by the outgrowth of sympathetic cells from the hind brain and the ganglia of the vagus, and possibly of the glosso-pharyngeal. From this source sympathetic nerve cells follow the course of the vagus. [This is the "vagal-sympathetic" system of Kuntz (*Reviewer*).]

3. At the sixth day of incubation fibrous rami communicantes between the sympathetic and the spinal nerves appear. In the thoracic region the sympathetic ganglia are prominent, darkly staining structures largely composed of cells which have migrated at an earlier date, together with others of recent migration. In

the abdominal region the sympathetic chain is later in attaining its full development, probably owing to the large number of cells which take part in the ventral migration.

4. The sympathetic cells accompanying the vagal fibres form the basis of the cardiac and pulmonary plexuses, as well as the greater part at least of the plexuses in the upper gut and adjoining viscera (liver, pancreas).

5. The gut is supplied in its hind portion by sympathetic nerve elements which migrate to it from the chain to form the ganglion of Remak, besides laying the basis of the intestinal nerve plexuses. Sympathetic nerves also pass to the lowest portion of the gut from the pelvic plexus. Later in development outgrowths from the sympathetic pass to the mid and lower end of the upper portions of the gut and augment the plexuses derived from the vagal sympathetic supply.

6. In the spleen, Wolffian body, suprarenals, and gonads the basis of the nerve supply is laid down by outgrowths from the sympathetic chain. LEONARD J. KIDD.

PHYSIOLOGY.

ON THE PRESENCE OF ACTIVE PRINCIPLES IN THE THYROID
(619) **AND SUPRARENAL GLANDS BEFORE AND AFTER BIRTH.** F. FENGER, *Journ. of Biol. Chem.*, Vol. xi., No. 5, June 1912, p. 489.

THE author found that the active principles of thyroid and of suprarenals are present in the ox, sheep, and pig long before birth. There is a marked increase after birth, and the maximum amount is reached in the growing animal.

The active principle of the adrenals was found to be present before birth in comparatively larger amounts than in the adult.

The active principle of the thyroid was estimated as iodine by Hunter's method (*v. Review*, 1911, ix., No. 6, p. 319), and that of the adrenals was estimated by the iodic acid method of Hale and Seidell. R. A. KRAUSE.

THE ACTION OF ADRENALIN AND OF CHOLINE ON THE
(620) **SPINAL CORD REFLEXES OF THE TURTLE. (Action de l'adrénaline et de la choline sur les réflexes de la moelle épiniére chez la tortue.)** F. LUSSANA, *Arch. Internat. de Physiol.*, Vol. 12, F. 2, August 25, 1912, p. 119 (9 Figs.).

THE author gives the following summary of his methods of experimentation on *Emys europæa* and his conclusions:—He established a complete artificial circulation in the animal, whose

cord was divided at its exit from the cranium, with an apparatus which allowed of the instantaneous substitution of solutions of adrenalin, or of choline, for the normal Ringer's fluid. At the same time he took records of the reflexes of a hind limb. He observed the following facts: (1) Adrenalin augments the cardiac pressure and the force of the heart beats. If the frequency be not already raised, it also accelerates the rhythm; in any case it does not slow it. (2) Choline increases the force of the pulsations and slows them; sometimes it diminishes the pressure. (3) Adrenalin diminishes the tonus of the voluntary muscles, and weakens the spinal reflexes by acting on the nerve centres and probably also the nerve terminations. (4) Adrenalin does not weaken the contractions produced in curarised muscles, and causes no change in their tonicity. (5) Choline augments the tonus of voluntary muscles. In certain doses it weakens at the same time the intensity of spinal reflexes; in very small doses it does not weaken it, while it augments the tonus of the muscles whose reflex reactions were studied. (6) Choline increases the tonus of curarised muscles—its action, therefore, affects the muscular elements, at least in part. (7) Yet it acts also on the centres for the reflexes and probably also the nerve terminations. In fact, even if it circulates alone in the reflex centres, it determines a certain augmentation of tonus of the muscles depending on those centres, and it removes the weakening action of adrenalin on the reflexes (central action) even more easily and rapidly than the normal liquid.

LEONARD J. KIDD.

THE ACTION OF ADRENALIN AND OF CHOLINE ON THE
(621) **DETERMINATION OF SEX IN SOME MAMMALS. (L'action de l'adrénaline et de la choline sur la détermination du sexe chez quelques mammifères.)** R. ROBINSON, *Compt. Rend. de l'Acad. des Sciences*, T. 154, No. 24, June 10, 1912, p. 1634.

A CONTINUATION of the author's previous researches on adrenalised female mammals: further work is promised. He obtained twenty-five males out of thirty births. Histological examination of the ovules of adrenalised guinea-pigs showed disappearance of lecithin. While the proportion of males is high in the progeny of adrenalised females, the opposite holds good for those to whom choline has been given. The technique employed is given, and also some statistical material. In three fresh instances Robinson has been able to forecast the sex of a child by examination of the mother's urine: if it gives the reaction of adrenalin, the child will be male; if it does not, female.

LEONARD J. KIDD.

THE INFLUENCE OF THE ADRENALS ON GROWTH. (De
(622) **l'influence des glandes surrénales sur la croissance.)** FERREIRA DE MIRA, *Compt. Rend. d. l. Soc. de Biol.*, T. 73, No. 29, Oct. 25, 1912, p. 377.

THE great size of the adrenals at birth relative to the size of the body is shown by the figures of Pende: in the newly-born white rat the adrenals are $\frac{1}{300}$ of the body-weight, in adults $\frac{1}{3000}$; in the cat $\frac{1}{1100}$ at birth, $\frac{1}{3000}$ in adults. Vassale extirpated one adrenal and the aortic para-ganglion in a two months' old puppy: she grew up feebler than the control, and her offspring were affected, one dying and the other becoming rachitic. The author removed the left adrenal in a suckling puppy one month old; another of the same litter was kept as a control: the puppies were weighed on the day of operation: the one selected for operation was 50 g. the heavier: the weights were taken at regular intervals. The control showed a much more rapid weight-curve. At the end of 5 months 10 days the control weighed 8,250 g., the operated only 5,800. The operated was rather short, feeble, and thin: body and limbs slender; but it was lively and fed well: muzzle small and tapering: hair short, smoother to touch, slightly woolly, and less coloured: spots which were black at time of operation (as in control) became now rather pale and almost yellowish: measured from top of head to root of tail 59·5 cm.; the control 65 cm. Operated was the thinner. Radiography showed that the bones of all the limbs were rather longer and slenderer in the operated animal: its tail was thinner, but of same length as control's. No arrest of ossification was found. Similar operations in two kittens of $2\frac{1}{2}$ and 1 month respectively gave similar results. The author concludes that we may surmise from these facts that the adrenals have a physiological action on growth in general, and specially on the development of the bones.

LEONARD J. KIDD.

THE NON-TOXICITY OF INGESTED ADRENALIN. (De l'adrénaline
(623) **en ingestion.)** E. LESNÉ and L. DREYFUS, *Compt. Rend. d. l. Soc. de Biol.*, lxxiii., No. 30, Nov. 1, 1912, p. 407.

HAVING confirmed the results of Batelli that the hypodermic injection of 1 cg. of adrenalin per kilogramme of body-weight is always fatal to rabbits, the authors found that even twice that dose was absolutely harmless to rabbits when injected, after laparotomy, into the stomach or small intestine. Fatal results, however, followed when the fatal hypodermic dose was introduced into the rectum: but death did not occur so quickly as after subcutaneous injection. They conclude that ingested

adrenalin loses its toxicity, but that the toxicity of adrenalin per rectum is preserved to some extent. They suggest the rectal route for adrenalin medication. LEONARD J. KIDD.

THE CHARACTERISTIC COURSE OF THE RISE OF BLOOD
(624) **PRESSURE CAUSED BY AN INTRASPINAL INJECTION OF ADRENALIN.** J. AUER and S. J. MELTZER, *Proc. of the Soc. for Exper. Biol. and Med.*, Vol. ix., No. 4, April 1912, p. 79.

AUTHORS found that injection of from 1 c.c. to 1·5 c.c. of commercial adrenalin into the spinal canal caused a slow rise of blood pressure reaching its maximum in about a few minutes, followed by a gradual and very slow fall, the fall even exceeding that of intravenous injection of adrenalin in length of time sometimes by half an hour. In a few cases the rise was preceded by a slight fall of pressure but not lasting very long. R. A. KRAUSE.

THE INHIBITORY ACTION OF ADRENALIN IN MUSCLE-PAN-
(625) **CREAS MIXTURES.** A. M. PAPPENHEIMER, *Proc. of the Soc. for Exper. Biol. and Med.*, Vol. ix., No. 4, April 1912, p. 79.

IT was found that by adding adrenalin to muscle-pancreas mixtures, the glycolytic action of the muscle ferment was retarded.
R. A. KRAUSE.

NOTE ON THE EFFECT OF THE INTERNAL SECRETIONS UPON
(626) **THE SECRETION OF EPINEPHRIN.** ISAAC OTT and J. C. SCOTT, *Proc. of the Soc. for Exper. Biol. and Med.*, Vol. ix., No. 4, April 1912, p. 94.

THE action of epinephrin on the rhythmic contractions of the intestine (which epinephrin relaxes and inhibits) is utilised as a test for the presence of epinephrin in the blood.

The authors using the above test hold that iodothyrin and infundibulin stimulate the adrenals. R. A. KRAUSE.

THE RESULTS OF DESTRUCTION OF THE CAROTID BODY.
(627) **(Sur les effets de la destruction de la glande carotique.)** G. VASSALE, *Arch. Ital. de Biol.*, lvii., F. 1, June 12, 1912, p. 113.

A FRENCH translation of Vassale's original Italian paper (*Pathologica*, iii., No. 70, Oct. 1911). The bilateral carotid body, now known to exist in all mammals, was regarded by the older anatomists as a nerve-ganglion, by Luschka as a formation of glandular nature resembling the pituitary and adrenals, and by Arnold as an inter-carotidean glomerulus. Modern embryologists hold that it is derived from the sympathetic system: it is

held to belong to the chromaffine system, though Kohn admits it does not give the full chromaffine reaction. Vassale has failed to get it in cats. Pende got no definite results from bilateral extirpation of the carotid body in guinea-pigs.

Vassale, having found that in cats extirpation is difficult, if not impossible, and the risk of injury of the carotid artery is great, destroyed the carotid bodies of thirteen kittens and cats by the cautery. He found constantly glycosuria, which appeared in the first urine voided on coming out of the chloroform narcosis, and disappeared usually on the fourth day; albuminuria was generally absent, but, when present, only showed as a trace on the first day. During the period of glycosuria the animals were depressed, with bristly hair and raucous voice: their appetite was good, and recovery followed. But two kittens, observed for five or six months, though they ate voraciously and showed no glycosuria after the first three days, became cachectic, showed alopecia of head, neck, and (later) of body, emaciated greatly, and died from asthenia. Vassale does not believe that the glycosuria is due to a lesion of the very abundant nerves of the carotid body; for in one case of attempted bilateral extirpation, a small piece of one carotid body was left, and yet the glycosuria followed. In another case, avulsion of the nerves entering the carotid body was followed by only minimal traces of glycosuria.

LEONARD J. KIDD.

HAS THE CAROTID BODY A SPECIAL INTERNAL SECRETION?

(628) **(La glande carotidienne de Luschka possède-t-elle une sécrétion interne propre ?)** C. FRUGONI, *La Semaine Médicale*, Année 32, No. 41, Oct. 9, 1912, p. 481.

INTRAVENOUS injection into rabbits of extracts of young calves' carotid bodies, prepared by a special method, of which 4 c.c. represented one body, gave the following results: (1) Doses of 4 to 6 c.c. were usually rapidly fatal, and gave interesting results in the blood, respiration, and heart. (2) By diminishing the intervals between the administration of small doses—well borne and gradually increased—it was possible to so habituate the animals that even many times the fatal dose was easily borne. (3) Small doses gave initial moderate vascular hypertension, followed by considerable prolonged hypotension. (4) This hypotensive phase does not depend on a modification of tonus of the bulbar vasomotor centre. (5) A vasodilator property of carotidin was established. (6) The hypotension is, at any rate largely, subordinated to this vasodilator action. (7) Experiments on the isolated hearts of rabbits showed that the hypotension is not due to cardiac weakness; for extracts tend, on the contrary, to

strengthen the heart. (8) Repeated and prolonged injections did not give the anatomo-pathological changes in the vessels, such as are produced by adrenalin, tobacco, lead, etc. (9) Adrenalin injected in the complete hypotensive phase of carotidin gives its usual blood-pressure effects. (10) Carotidin injected in the hypertensive phase of adrenalin gives some hypotension, but only in large doses. (11) Combined adrenalin and carotidin always gives adrenalin effects, but possibly a less abrupt rise in pressure than that of adrenalin alone.

The concluding section of the paper sums up, with moderation, the question of an internal secretion of the carotid body: for the present this must be left in doubt; though it is possible and even probable, we cannot categorically affirm it. LEONARD J. KIDD.

PATHOLOGY.

CONCERNING THE HISTOLOGICAL CHANGES IN CERTAIN ORGANS IN A PATIENT DYING AFTER SALVARSAN. H. O. RUH, *Cleveland Med. Journ.*, Vol. xi., No. 9, Sept. 1912, p. 631.

(629)

IN a case having a positive Wassermann reaction and clinical signs of lues, after the intravenous injection of 0·5 g. of salvarsan in alkaline solution there followed an anuria which resulted in death after five days. At the autopsy there were found evidences of a severe intoxication. The main effects were seen in the kidney and liver, which showed degenerative changes and proliferation of the parenchymatous elements, the pathological changes being similar to those produced in experimental arsenic poisoning.

A. NINIAN BRUCE.

CLINICAL NEUROLOGY.

THE HISTOLOGY OF EXPERIMENTAL RHEUMATISM. CAREY COOMBS, REGINALD MILLER, and E. H. KETTLE, *Lancet*, Nov. 2, 1912, p. 1209.

(630)

INOCULATION of rabbits with streptococci recovered from cases of rheumatic infection has provoked arthritis, carditis, and other lesions. Histological examination of these lesions discovers (*a*) that they are identical with similar changes provoked in rabbits by inoculation with a similar micro-organism in the hands of other investigators; (*b*) that they include all the phenomena, even the submiliary nodule, found in the rheumatic lesions of man. Such differences as exist between the experimental rheumatic infection

and the human variety are accountable for by a difference in the mode of entry of the infective agent in the two conditions.

A. NINIAN BRUCE.

A PARTICULAR VARIETY OF INVERSION OF THE RADIUS REFLEX. (Une inversion particulière du reflexe du radius.) (631) P. SANDOZ, *Rev. Méd. de la Suisse Romande*, Année 32, No. 7, July 20, 1912, p. 533.

IN this brief note Sandoz records a peculiar form of inversion of the radius reflex, viz., a sharp extension of the hand on the forearm. A man of 40 had a stroke, followed by a right hemiplegia, six months before he consulted Sandoz. Examination showed a right hemiplegia of the Mann-Wernicke type; the arm was more affected than the leg; in walking, the right leg was circumducted; there was right ankle and patellar clonus with Babinski. A slight tap on the radius of the flexed and pronated right forearm gave the inversion mentioned.

LEONARD J. KIDD.

BLOOD PRESSURE IN HEMIPLEGIA. (La pression sanguine chez les hémiplégiques.) (632) PIERRET, *Echo méd. du Nord*, 1912, xvi., p. 397.

PIERRET examined the blood-pressure with Pachon's oscillometer in forty-one patients, aged from 21 to 79 years. In twenty-nine cases, or 70 per cent., there was marked hypotension on the paralysed side, in four the tension was the same in both wrists, and in eight the tension was higher on the paralysed side. The paralytic hypotension appeared to be independent of the side (right or left) and of the duration of the hemiplegia. On the average the maximum pressure was 2-3 cm. Hg. and the minimum pressure 1-3 cm. Hg. higher on the sound side. Pierret attributes the hypotension to vaso-dilatation of the peripheral vessels due to paralysis of the ganglia and vaso-motor nerves on the affected side (*cf. Review*, 1910, viii., p. 431).

J. D. ROLLESTON.

HYPERTONIC CONTRACTION, OR INTERMITTENT CLOSING OF THE CEREBRAL ARTERIES. (633) JOHN PHILLIPS, *Cleveland Med. Journ.*, Vol. xi., No. 9, Sept. 1912, p. 639.

THE author considers that many of the transient attacks of monoplegia, hemiplegia, aphasia, or merely periods of momentary unconsciousness, which are seen in cerebral arterio-sclerosis, are due to temporary vascular spasm, and cites four cases in support of this view.

A. NINIAN BRUCE.

A CASE OF ASYMMETRICAL BILATERAL HERPES ZOSTER.
(634) C. A. MOTLEY, *Jour. Amer. Med. Assoc.*, 1912, lix., p. 879.

THE patient was a woman, aged 66, suffering from mitral regurgitation, who one day had typical herpes of the left facial and posterior auricular nerves with a few vesicles on the side of the neck and scalp, and twenty-four or thirty-six hours later developed vesicles along the course of the right seventh intercostal nerve.

J. D. ROLLESTON.

HERPES ZOSTER BY CONTAGION. S. VERAS, *Brit. Journ. Child.*
(635) *Dis.*, 1912, ix., p. 360.

A RECORD of herpes zoster in two sisters, aged 6 and 3 years respectively, living in the same house. The localisation was the same in both, but the eruption was less marked in the younger child who was affected six days after her sister. Similar cases have been recorded by Klamann, Millon, Paggi, and Cruchet.

J. D. ROLLESTON.

AN EPIDEMIC OF ZOSTER. (**Épidémie de zona.**) J. VITRAC, *Gaz.*
(636) *hebd. d. Sci. méd. de Bordeaux*, 1912, xxxiii., p. 332.

IN the course of three months sixteen cases of zoster were observed at Libourne. No instances of contagion were noted.

J. D. ROLLESTON.

PRURITUS IN TABES. (**Prurit tabétique.**) L. M. A. SAVIN, *Thèses de*
(637) *Bordeaux*, 1910-11, No. 80.

THE thesis contains the histories of thirteen cases, four of which are original, while the rest have been borrowed from Milian, Lamy, and Bitot (*v. Review*, 1907, v., p. 909, and 1911, ix., p. 626). The site of the pruritus in the author's cases was as follows: Case 1, Perineum, scrotum, and pubis; case 2, Left subclavicular region and outer side of legs; case 3, Soles; case 4, Back, arms, thorax, and legs.

In one the pruritus preceded, and in the other three followed the appearance of the other symptoms of tabes. J. D. ROLLESTON.

TABETIC CRYÆSTHESIA. (**La Cryesthésie Tabetique.**) MILIAN,
(638) *Bull. et mém. de la Soc. Méd. des Hôp. de Paris*, Année 28, No. 22, June 27, 1912, p. 929.

MILIAN has seen this symptom some fifteen times during the past year. He showed a patient, a man of 52, with tabetic "sciatica," who complained of a painful sensation of coldness, as of a lump of

ice, over the thigh and buttock of the affected side; in addition, there was a real lowering of local temperature. This cryæsthesia may be an early symptom: sometimes it is the only one complained of. It is most often felt in the toes, feet, and thighs; less often in loins and thorax. It is intermittent, often occurs in paroxysms, and may disappear under specific treatment, emotion, or muscular effort. In certain cryæsthesic regions heat is badly appreciated, but cold stimuli well. In the patient shown by Milian there was no renal disease. LEONARD J. KIDD.

TRANSMISSION OF POLIOMYELITIS TO THE MONKEY WITH
(639) **THE VIRUS OF THE ENGLISH EPIDEMIC OF 1911. (Transmission de la poliomyélite au singe avec le virus de l'épidémie anglaise de 1911.)** LEVADITI, GORDON, and DANULESCO, *Compt. rend. Soc. de Biol.*, 1911, lxxi., p. 651.

DR GORDON examined histologically the nervous system of four fatal cases, two from Cornwall, one from Devonshire, and one from London, and found typical lesions of poliomyelitis in all. The spinal cords were sent to the Pasteur Institute where three of the four produced typical infantile paralysis in monkeys. The remaining cord, which was from one of the Cornwall cases, was negative. J. D. ROLLESTON.

THREE PARISIAN CASES OF ACUTE FATAL POLIOMYELITIS.
(640) **(Trois cas parisiens de poliomyélite aiguë mortelle.)** LEVADITI, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiv., p. 24.

LEVADITI contrasts the feeble degree of virulence of the virus in the sporadic Parisian cases as compared with the virus obtained from epidemic foci, especially in the late Devonshire and Cornwall epidemic. Out of four cords from cases that had died in that outbreak three infected monkeys and readily conveyed the disease from one animal to another. In the Parisian cases, on the other hand, of three cords examined, two infected monkeys after eight and fifteen days' incubation, but none allowed passage from one animal to another. Levaditi concludes that the pathogenicity of a virus from sporadic poliomyelitis is inferior to that of a virus from an epidemic source. J. D. ROLLESTON.

A PARISIAN CASE OF FATAL POLIOMYELITIS. (Un cas
(641) **parisien de poliomyelite aiguë mortelle.)** WIDAL, LEVADITI, BRODIN, and MLLE. LEONANO, *Bull. et mém. Soc. med. Hôp. de Paris*, 1912, xxxiv., p. 20.

A SPORADIC case of the cervical and bulbar form of the disease in a youth aged 15. The paralysis was preceded by a sore throat,

which indicated that the portal of entry was the tonsil. Post mortem marked lesions were found in the upper cervical cord and bulb. The feeble virulence of the virus was shown by the fact that though a monkey contracted the disease after fifteen days' incubation, passage through a series was impossible.

J. D. ROLLESTON.

THE CEREBRO-SPINAL FLUID IN INFECTIOUS DISEASES, ESPECIALLY IN CONNECTION WITH WASSERMANN'S REACTION IN ACUTE EPIDEMIC POLIOMYELITIS. (Der Liquor cerebro-spinalis bei Infektionskrankheiten, insbesondere im Zusammenhang mit der Wassermannschen Reaktion bei Poliomyelitis acuta epidemica.) H. SCHOTTMÜLLER, *Münch. Med. Woch.*, 1912, lix., p. 1988.

(642)

AFTER mentioning cases of pneumonia, typhoid fever, staphylo- and streptococcal infection, with cerebral symptoms in which the cerebro-spinal fluid, though sterile, showed increased pressure and leucocytosis, the author records three cases of acute poliomyelitis in patients aged 7 weeks, 1½ years, and 26 years respectively, who gave a strongly positive Wassermann's reaction during the acute stage, though in each case syphilis could be excluded with a probability bordering on certainty. On subsidence of the acute symptoms the reaction became negative in each case. Schottmüller remarks that these findings require confirmation, but at present he thinks that Wassermann's reaction may be of diagnostic value in acute poliomyelitis.

J. D. ROLLESTON.

MUSCLE TRAINING IN THE TREATMENT OF INFANTILE PARALYSIS. W. G. WRIGHT, *Boston Med. and Surg. Journ.*, Vol. clxvii., No. 17, Oct. 24, 1912, p. 567.

(643)

A VERY complete description is here given of a series of muscular exercises for restoring the maximum of strength to weakened muscles.

A. NINIAN BRUCE.

HEINE-MEDIN'S DISEASE. FRESH PARISIAN CASE. (Maladie de Heine-Medin. Nouveau cas parisien.) C. LEVADITI, J. PIGNOT, and MLLE. LEONANO, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiv., p. 10.

(644)

A MAN, aged 34, was suddenly attacked one evening with paraplegia. The upper limbs were affected two days later, and death occurred on the following day. The case was a sporadic one, like the previous case reported by Levaditi (*v. Review*, 1911, ix., p. 201), as there was no epidemic focus in Paris or elsewhere in France at the time. Inflammatory and degenerative lesions were very

marked in the lumbar cord, and less pronounced in the cervical segment and bulb. The pons was more affected than the bulb, but the rest of the brain showed no changes. Emulsions of the cord and bulb did not infect a monkey with poliomyelitis.

J. D. ROLLESTON.

STAPHYLOCOCCAL MENINGITIS FOLLOWING A WOUND OF THE FINGER. (Un cas de méningite à staphylococques consécutive à une plaie du doigt.) (645) LYONNET and BOVIER, *Lyon méd.*, 1912, cxix., p. 49.

A FATAL case of this rare form of meningitis in a pork butcher, aged 30, following within a month a whitlow of the right middle finger. The clinical picture resembled that of typhoid fever, no characteristic meningeal symptoms being present. Staphylococci were found during life in the blood and purulent cerebro-spinal fluid. The necropsy showed only a small quantity of pus along the large vessels, especially the Sylvian arteries.

J. D. ROLLESTON.

PNEUMOCOCCAL MENINGITIS. (La méningite à pneumococques.) (646) LAFFORGUE, *Paris méd.*, 1911-12, ii., p. 234.

LAFFORGUE distinguishes three varieties:—

1. *Pneumococcal meningitis with pneumonia,* which is subdivided into (*a*) pneumonia preceding meningitis by a period ranging from a few days to three weeks; (*b*) simultaneous occurrence of the two conditions; (*c*) meningitis preceding pneumonia. The frequency of meningitis in pneumonia varies from 0·13 to 8 per cent. It is most frequent in males and at the two extremes of life. It may occur in epidemics.

2. *Pneumococcal meningism.*—Apart from a slight degree of hypertension and a very small number of pneumococci the cerebro-spinal fluid is normal. The meningeal symptoms are ill marked. Diagnosis can only be made by lumbar puncture.

3. *Pneumococcal meningitis without pneumonia.*—The meningitis may be the only manifestation of infection, or be associated with other localisations of the pneumococcus, *e.g.*, endocarditis, otitis, rhinitis, &c.

J. D. ROLLESTON.

A CASE OF PNEUMOCOCCAL CEREBRO-SPINAL MENINGITIS. (647) J. H. CUMMING, *Lancet*, Nov. 9, 1912, p. 1294.

A BOY, aged 12, was admitted to hospital with marked head retraction, great pain in head and neck, delirium and vomiting. Twitchings of the face had been noticed for three months previously. Kernig's sign was well marked. On lumbar puncture

the cerebro-spinal fluid was withdrawn under normal pressure and gave cultures of pneumococci. Anti-pneumococcic serum (Merck) was injected into the spinal canal, and caused so much pain that further injections were made under an anæsthetic, which, however, did not diminish the painful after affects, for which morphia had to be given. The head retraction became gradually less and the headache abated. In all, ten injections of the serum had been made, the first four consisting of 3·5 c.c., the remainder of 7 c.c. In almost every case the injection was followed by a rapid fall of the temperature and complete recovery ultimately took place. As the case was uncomplicated by any symptoms of inflammation elsewhere in the body, the infection of the nervous system appears to have been primary. A. NINIAN BRUCE.

A CASE OF MENINGITIS IN WHICH THE ONLY ORGANISM
(648) **THAT COULD BE CULTIVATED FROM THE CEREBRO-SPINAL FLUID DURING LIFE WAS A BACILLUS OF THE PROTEUS GROUP.** E. ATHOLE ROSS, *Lancet*, Nov. 9, 1912, p. 1292.

THE case of a boy, aged 9 months, who was admitted to hospital for stiff neck of two days' duration. On examination marked head retraction was found, Kernig's sign was suspicious, the fontanelles did not bulge and on lumbar puncture no cerebro-spinal fluid could be obtained. He grew rapidly worse and died five days later. A smear of the cerebro-spinal fluid obtained two days before death showed intracellular and extracellular bacilli (Gram-negative) with numerous polymorphs.

At the autopsy the vertex and base of the brain were found covered with a thick layer of greenish-yellow pus. The ventricles were dilated and contained pus. The membranes of the spinal cord were also covered with pus. No sign of a localised abscess could be discovered. Both middle ears contained pus.

The principal bacilli to be found in the cerebro-spinal fluid, apart from tubercle, are (1) the typho-colon group, (2) Friedländer's pneumobacillus, (3) influenza bacillus, (4) leptothrix associated with tubercle bacillus.

No cultures were taken at this autopsy, but the author considers that an acute proteus infection of the meninges was the cause of death for the following reasons: (1) the bacillus, with phagocytic polymorph leucocytes, was found in the cerebro-spinal fluid during life, (2) the presence of a certain amount of agglutinin against this organism in the patient's serum at the terminal stages of his illness, (3) the acknowledged pathogenic powers of the proteus bacillus, (4) the fact that it has been cultivated from cases of

cerebral abscess, and (5) the presence of pus in both middle ears and the well-known connection of the organism with many cases of otitis media. A. NINIAN BRUCE.

ON THE PRESENCE OF SUGAR IN THE CEREBRO-SPINAL
(649) **FLUID FROM CASES OF MENINGITIS.** F. H. JACOB, *Brit. Med. Journ.*, Oct. 26, 1912, p. 1097.

THERE is in normal cerebro-spinal fluid a chemical substance which reduces Fehling's solution; this is absent in some cases of meningitis and present in others.

The author concludes that in pyogenic meningitis, pneumococcus, streptococcus and mixed infection, sugar is invariably absent. In cerebro-spinal meningitis sugar is absent in the acute stage, but may return in some degree as the infection recedes. In tuberculous meningitis sugar is present, except in very rare cases shortly before death, in which stage difficulty of diagnosis rarely exists. In poliomyelitis sugar is present. The author considers these findings are of real value. A. NINIAN BRUCE.

TWO CASES OF RECKLINGHAUSEN'S DISEASE WITH SPINAL
(650) **DEFORMITY. (Uber zwei Fälle von multiplen Neurofibromatose (Recklinghausenschen Krankheit) mit Verkrümmungen der Wirbelsäule.)** E. KOLEPKE, *Inaugural Dissertation*, Berlin, 1911-12, No. 37.

THIS thesis, which has also been published in the *Zeitschr. f. Orthop. Chir.*, has already been abstracted (*v. Review*, 1912, x., p. 331). J. D. ROLLESTON.

ON NEUROFIBROMATA. (Ueber neurofibrome.) MANAS-BEK MELIK
(651) FARSATANIANZ, *Inaugural Dissertation*, Berlin, 1911-12, No. 66.

THE thesis contains the following original case: A woman, aged 25, presented an elephantiasiform tumour arising from the skin over the second to fourth lumbar vertebræ and extending down to the gluteal folds. It had first appeared five years previously. The skin covering it was pigmented. On removal the tumour was found to weigh 10 kilos. Microscopical examination showed it to be a neurofibroma. J. D. ROLLESTON.

TEMPERO-SPHENOIDAL LOBE ABSCESS. Operation and Recovery.
(652) NEWBOLD JONES, *Canad. Pract. and Review*, Vol. xxxvii., No. 10 Oct. 1912, p. 592.

A CASE of middle ear disease following a cold which grew rapidly worse in spite of syringing and blistering. An uneventful recovery followed the removal of four drachms of pus and blood from the tempero-sphenoidal lobe. A. NINIAN BRUCE.

A CASE OF SEPTIC THROMBOSIS OF THE LEFT SIGMOID, LEFT (653) CAVERNOUS AND LEFT INFERIOR PETROSAL SINUSES, with a suggestion for treatment in future cases. CHARLES A. BALLANCE, *Lancet*, Oct. 12, 1912, p. 1001.

A BOY, aged 12, was admitted to hospital with discharge from the left ear, and tenderness, swelling and pain over and behind the left mastoid. He was drowsy and apathetic. The pupils were normal and no retinal changes were observed. A complete mastoid operation was done. The sigmoid sinus was then explored, found to contain pus, exposed, and the dura bounding it was found to be white and gangrenous. The petrous in front of the sinus was cut away till the back of the bulb was exposed. The jugular vein was then dissected in the neck and divided between ligatures.

A few days later his temperature rose to 107° and œdema of the left upper eyelid and slight proptosis were noticed. The left third nerve was affected and the retinal veins became engorged. The left cavernous sinus was then opened into and contained pus posteriorly. On opening the old wound the dura was found gangrenous and a meningo-cortical abscess of the cerebellum was discovered. Death took place a few days later from septic absorption.

At the necropsy the left inferior petrosal sinus was found full of pus. The left cavernous sinus was empty, the right was normal, and the abscess cavity free from pus. The pathway of infection from the bulb to the cavernous sinus was the inferior petrosal sinus, which was not here treated, and it is proposed that in future cases of this kind the bulb should be freely exposed and its wall cut away; the opening of the inferior petrosal sinus into the bulb can then be identified and by means of a syringe and small rubber tube the infective material in it can be washed from the bulb and out through the incision in the cavernous sinus.

A. NINIAN BRUCE.

A CASE OF INTRACRANIAL TUMOUR. HUGH SMITH, *Lancet*, (654) Oct. 5, 1912, p. 948.

THE subsequent history is here given of a woman who was operated upon in October 1905 for cerebral tumour. At that time her symptoms were: mental apathy, severe left frontal headache, cerebral vomiting, and slight weakness of the right arm and hand. She became rapidly worse and developed stupor, increasing headaches, paresis of right side of face, arm, leg, tongue, and right external oblique muscle. Babinski's and Kernig's sign were positive on both sides; the pupils became unequal and double optic neuritis developed. On operation, a spindle- and round-

celled sarcoma, apparently originating in the dura mater, was removed; it had compressed the posterior two-fifths of the left middle frontal convolution and the corresponding portion of the superior convolution. Apart from a fit six hours after the operation, she made an uninterrupted recovery.

In April 1907 she was in perfect health, and, apart from slight frontal headache, remained so until 4th September, when she had a fit. On 17th October she had a second fit with loss of consciousness and general convulsions. A large flap was reflected close to the old scar and a nodulated spindle and round-celled sarcoma was removed together with the adherent dura mater to which it was attached. The patient made a good recovery, and left the hospital on 29th November. From that time till now (August 1912) she has remained well, and is able to perform all her domestic duties.

A. NINIAN BRUCE.

LATE TRANSITORY SIXTH NERVE PALSIES IN FRACTURES OF THE SKULL. (Paralysies tardives et passagères du moteur oculaire externe dans les fractures du crane.) (655) A. BROCA and B. DESPLAS, *Rev. de Chirurgie*, xlvi., iii., Sept. 10, 1912, p. 349.

THE authors record two cases in children: in case 1 the sixth nerve palsy appeared on the third day after the injury and disappeared on the seventh. In case 2, a girl of 11, it came on three days after the injury, was diminishing twenty days after, and disappeared in two months: it was complicated by facial palsy and palatal palsy, palatal anæsthesia, and nasal voice and regurgitation: there was no history of diphtheria, and no throat affection. The authors quote cases from the literature. In discussing the cause of these late transitory palsies, they reject compression of the nerve by callus, and conclude that they are due to compression by a hæmatoma round the nerve or within its sheath.

LEONARD J. KIDD.

SEVERAL CASES OF FACIAL PARALYSIS IN A FAMILY. (Gehäufte Fälle von Fazialislähmung in einer Familie.) (656) F. W. A. WEBER, *Münch. Med. Woch.*, 1912, lix., p. 1958.

A RECORD of complete right facial paralysis in a girl, aged 9 years, whose two aunts some years previously had also had right facial palsy, one of them on two occasions. Three of these four attacks were mild, one moderately severe, all ended in complete recovery. Weber suggests that the familial occurrence of this palsy was due to some anatomical peculiarity, *e.g.*, malformation of the bony canals through which the facial nerve passes, so that the slightest swelling of the periosteum was liable to produce paralysis.

J. D. ROLLESTON.

TWO CASES OF SEVENTH NERVE PARALYSIS SECONDARY TO
(657) **ARTIFICIAL CONGESTION.** B. ROSENBLUTH, *Med. Record*, Vol. 82, No. 17, Oct. 26, 1912, p. 758.

THE first case was that of a man, aged 55, who developed complete right facial paralysis following the application of a mustard plaster behind and below the right ear for migraine. Severe congestion and slight vesication had resulted. A reaction of degeneration set in followed by a contracture.

The second case was that of a man, aged 23, who applied a mustard plaster over the left mastoid and below the ear for migraine. Next morning the part was greatly inflamed, a left facial paralysis was present, and a reaction of degeneration set in.

The author considers that in both cases the neural damage was due to the induced congestion and hyperæmia affecting the nerve at a part of its course where it compressed itself against the bony edge of the sterno-mastoid foramen. He also states that if ergot be given in large doses during the first five days before a reaction of degeneration has set in, "one can always be sure that he will positively cure his case." A. NINIAN BRUCE.

PERSISTENT PARALYSIS OF ACCOMMODATION AFTER DIPH-
(658) **THERIA. (Ein Fall von persistierender Akkommodationslähmung nach Diphtherie.)** H. OLOFF, *Klin. Monatsbl. f. Augenheilk.*, 1912, N.F., xiii., p. 551.

THREE weeks after an attack of tonsillitis in which no bacteriological examination was made, a sailor, aged 20, found that he had difficulty in reading and sewing. There was no diplopia nor difficulty in swallowing. Accommodation was found to be completely paralysed in the left eye, and almost completely in the right eye. The sphincter pupillæ was not affected. This condition was still present when an examination was made nearly four years after the onset of the paralysis. All other causes for ophthalmoplegia could be excluded. Wassermann's reaction performed on several occasions was always negative, and there was no history or evidence of syphilis. There are only three other cases of persistent paralysis of accommodation following diphtheria, recorded by Schmidt-Rimpler, Mühsam, and Wiegmann respectively.

In Schmidt-Rimpler's case the palsy was still present after six months, in Mühsam's after four years, and in Wiegmann's after three years (*v. Review*, 1911, ix., p. 37). J. D. ROLLESTON.

PROGRESSIVE INTERSTITIAL HYPERTROPHIC NEURITIS OF
(659) **CHILDHOOD OF DEJERINE AND SOTTAS. Report of a Case.** WALTER F. SCHALLER, *Archives of Int. Med.*, Vol. x., No. 4, Oct. 15, 1912, p. 399.

THIS rare disease commences in childhood between the eighth

and fourteenth year and is frequently a family affection. It is characterised by a progressive course, ataxia, muscular atrophy, and a marked disturbance of sensibility, with hypertrophy of the nerve trunks (which is the distinguishing feature of the disease). The muscular atrophy begins in the feet and later affects the arms. The atrophy and malformation of the feet is such as is met with in Friedreich's ataxia. The cutaneous and tendinous reflexes are lost. All forms of sensibility are markedly affected, and a reaction of degeneration may be noticed. Romberg's sign is present, and the Argyll-Robertson pupil may be found. The sphincters are unaffected.

The affection must be differentiated from the Charcot-Marie type of spinal muscular atrophy, from Friedreich's ataxia, from an ordinary peripheral neuritis, and from juvenile tabes.

The hypertrophy of the nerves is the essential lesion and affects cranial, spinal, and sympathetic nerves. The dura mater is not altered. The nerves show both interstitial and parenchymatous changes. The proliferation of fibrous tissue takes place about the individual fibre or about several fibres forming an isolating sheath without the endoneurium being affected. This sheath of connective tissue is disposed concentrically about the nerve fibre very much like the layers of an onion. The anterior horn cells are diminished in number and some are atrophied.

Up till now only three autopsies have been recorded. The present case is that of a man, aged 20, the disease beginning seven years previously, and the diagnosis was established by excision of one of the enlarged superficial cervical nerves.

The author found improvement under arsenic and galvanism, but thinks it is probably only temporary. He considers that the condition is a distinct clinical entity. A. NINIAN BRUCE.

ON STATUS EPILEPTICUS AND ITS TREATMENT WITH HIGH
(660) **DOSES OF ATROPINE SULPHATE. (Ueber den Status epilepticus und seine Bekämpfung mit hohen Dosen von Atropinum sulf.)** DORNER, *Allg. Ztschr. f. Psych.*, 1912, Bd. 69, H. 1.

THE author has obtained very good results from the use of atropine sulphate in status epilepticus; he recommends the injection of 0·003 gr. as a first dose, and if this is ineffective, to be followed by higher doses up to 0·006 gr. As a rule 0·005 gr. three times daily should not be exceeded. These doses can be used even in young and comparatively feeble patients. The drug cuts short the status epilepticus in some cases, in others it reduces the number and intensity of the attacks; it acts as a useful cardiac stimulant.

C. MACFIE CAMPBELL.

SOME CLINICAL OBSERVATIONS IN THREE CASES OF (661) HUNTINGTON'S CHOREA. MAX A. BAHR, *Med. Record*, Vol. 82, No. 17, Oct. 26, 1912, p. 756.

CASE one was a woman, aged 46. The chorea had existed for nine years. Her mother, two maternal aunts, and one cousin were choreic; four of her children were extremely nervous. Her mother and one uncle became insane. She had always been in good health until the age of 35 when she began to have peculiar twitchings, first in the upper extremities, but becoming general two years later. There was only a mild degree of dementia, the patient had no hallucinations, was not suicidal, but was depressed and irritable although not melancholic.

Case two was also a woman, aged 42. One aunt had chorea at 34 and her grandfather was insane. The choreic movements have much increased during the last five years. Incoordination was very marked. General muscular strength unimpaired, noted absence of fatigue; marked tremor in writing. Speech thick and indistinct. Ideas of persecution present, but seem to have been true.

Case three was also a woman, aged 35. Mother and one sister choreic. Four cousins committed suicide. Choreic movements began at 31, at first mild, but later of great severity. She was irritable, seclusive and apt to be depressed, with slight mental deterioration shown by forgetfulness, superficial range of thought, partial loss of orientation and a loss of early school knowledge. All movements subsided during sleep. A. NINIAN BRUCE.

UNUSUAL CASE OF PLUMBISM. JULIAN SMITH, *Australian Med. Journ.*, Vol. i., No. 62, Sept. 21, 1912 p. 699.
(662)

A SHORT account of the case of a man, aged 40, who showed symptoms of marked anæmia, constipation, abdominal pains, large flabby tongue, headache, and well-marked blue line at the gum margins several months after the accidental discharge of a gun, the contents of which shattered his humerus and left much splayed-out lead behind. The metal was then removed by operation and the symptoms of lead poisoning were dispersed in about a fortnight. A. NINIAN BRUCE.

A CASE OF MYXŒDEMA. R. S. NOVIS, *Lancet*, Oct. 26, 1912, p. 1146.
(663)

AN account of the case of a man, aged 60, who presented a typical appearance of myxœdema. Complete recovery took place under thyroid extract. Before myxœdema was diagnosed, the patient had been treated for renal disease, but the albumen and tube casts disappeared after the thyroid administration. A. NINIAN BRUCE.

ACROMEGALY WITH PLURIGLANDULAR LESIONS. (**Acromegalia con lesioni pluriglandulari.**) G. PELLACANI, *Riv. Ital. di Neuropat., Psichiatr. ed Elletroter.*, 1912, v., p. 348.
(664)

A MAN, aged 32, suffering from the catatonic form of dementia præcox, showed well-marked signs of acromegaly associated with dysthyroidism (tremors and tachycardia) and genital dystrophy.

J. D. ROLLESTON.

THE ETIOLOGY AND TREATMENT OF MINER'S NYSTAGMUS, with a Review of 100 Cases. F. J. BROWNE and J. Ross MACKENZIE, *Brit. Med. Journ.*, Oct. 5, 1912, p. 837.
(665)

THE authors have examined carefully 100 cases of nystagmus in miners, and consider that the factors contributing to its production are not numerous, and, arranged in order of relative frequency and importance, are: (1) inadequate light, (2) errors of refraction, (3) straining of ocular muscles, (4) neurotic temperament.

All men working underground should be examined periodically for (*a*) the presence of refraction errors, (*b*) any signs of incipient nystagmus, and (*c*) physical or nervous debility. If this were done and the lighting of mines improved, miner's nystagmus would soon be unknown. The treatment consists of rest, strychnine, and the correction of refraction errors.

A. NINIAN BRUCE.

PELLAGRA IN THE BRITISH ISLANDS. L. W. SAMBON and A. J. CHALMERS, *Brit. Med. Journ.*, Oct. 26, 1912, p. 1093.
(666)

A SHORT description is here given of the history of pellagra, and reference is made to several cases in patients who have never been out of the British Islands. The authors are able to establish that pellagra is certainly endemic in Fifeshire, Forfarshire, Aberdeenshire, and the Shetland Islands, and believe that the information so far collected is sufficient to prove that for some long time pellagra has endemically prevailed in parts of the United Kingdom, being generally overlooked in its milder and more obscure forms.

A. NINIAN BRUCE.

SYMPTOMS OF PELLAGRA DUE TO ALCOHOLISM. (**Sindrome pellagrosa da alcoolismo.**) G. SEPPILLI, *Riv. Ital. di Neurop., Psichiat. ed Elletroter.*, 1912, v., p. 345.
(667)

A RECORD of two cases in women, aged 30 and 46 respectively, who presented the cutaneous, nervous and digestive symptoms of pellagra, though their condition was entirely due to alcoholism and not to maize poisoning.

J. D. ROLLESTON.

CONTRIBUTIONS TO THE NEUROLOGY OF THE CHILD: II.
(668) **NOTE ON THE MORTALITY AND THE PROPORTION OF BACKWARD CHILDREN IN CASES OF CONGENITAL SYPHILIS FOLLOWED SUBSEQUENT TO HOSPITAL TREATMENT.** *Boston Med. and Surg. Journ.*, Vol. clxvii., No. 9, Aug. 1912.

IN this article 60 cases of congenital syphilis have been traced. These divide themselves into three groups, viz.:—

1. Children mentally normal (19 cases, 5 of whom are of school age).
2. Children showing imperfect mental development (19 cases, 11 being of school age).
3. Children who have died (21 cases).

During the investigation special emphasis was laid on the mental development of the child.

Short histories of all the cases, as well as the results in tabular form, are given. All the cases, with one exception, had snuffles and skin eruptions when first treated.

The writer draws the following conclusions:—

1. Need for a much fuller investigation of such cases.
2. High early death-rate, due to a large extent from lack of maternal nursing and the short terms of treatment employed.
3. High percentage of backward children.
4. Lack of following up initial treatment, most of the histories showing that treatment stopped when eruption disappeared.
5. A "follow-up" system of supervision from the hospital is recommended.

A. FERGUS HEWAT.

A CASE OF OPTIC ATROPHY FROM "606." R. P. M'NEIL, R. M.
(669) ROBB, and A. M. MOLL, *Transvaal Med. Journ.*, 1912, vii., p. 220.

A MAN, aged 31, sought advice for sores on the penis on 26th January. On 13th February he received an intramuscular injection of 0·6 g. salvarsan. The sores completely healed in a fortnight. He was given hyd. c. creta, gr. ½ *ter die*. After a month he complained of severe neuralgic pains in the jaws and right brow, and he stopped taking mercury. On 19th April he complained of being blind in the right eye. Examination showed right optic atrophy. Although he complained of weakness in the left eye, no definite sign of atrophy could be detected.

J. D. ROLLESTON.

THE EFFECT OF SPECIFIC TREATMENT ON THE CEREBRO-
(670) **SPINAL FLUID.** W. F. LORENZ, *Med. Record*, 1912, ii., p. 185.

FROM investigations made on nine cases of general paralysis and three cases of Huntington's chorea with intravenous injections of

sodium cacodylate and "606," the writer comes to the following conclusions:—

1. The lymphocytosis of the cerebro-spinal fluid is reduced after the use of either sodium cacodylate or "606" in early cases of paresis.

2. The excess of globulin in the spinal fluid, as shown by the Noguchi butyric acid test, is less marked after the use of sodium cacodylate or "606."

3. The lymphocytosis and globubin content of the spinal fluid tend to parallel one another in their reduction.

4. Sodium cacodylate and "606" disappear from the blood within three hours after administration.

5. Arsenic is present in the spinal fluid and the blood serum one hour after the administration of sodium cacodylate.

6. After the administration of sodium cacodylate or "606," the urine very soon shows the presence of arsenic, and sodium cacodylate is probably entirely excreted within two days.

7. One gramme of sodium cacodylate is a safe dose both by the intramuscular and intravenous route.

8. Three cases of Huntington's chorea gave a positive Wassermann reaction with the blood serum, and two with the spinal fluid.

The literature is reviewed, and reference made to the following passages in this *Review*, 1911, ix., pp. 144, 269, 450, 516, 518 (*bis*), 612. J. D. ROLLESTON.

THE LIFE CYCLE OF THE ORGANISM OF SYPHILIS. J. E. R. (671) M'DONAGH, *Lancet*, Vol. clxxxiii., Oct. 12, 1912, p. 1011.

THE author thinks it is possible that the *Spirochæta pallida* is only one of the phases in the life cycle of the syphilitic parasite, and points out that diseases which have a long incubation period are nearly all due to protozoa, as the organism has to go through a series of changes before it can give rise to symptoms, and that recurrences after the injection of salvarsan, in which all the spirochætæ have no doubt been killed, is dependent on the cycle which the parasite goes through in the body of the host.

The commencement of the cycle is a motile sporozoite. This enters a large mononuclear cell, grows bigger and divides. One half becomes crescentic and then spherical, and is the female or macrogamete ready for fertilisation. The other half forms an irregular coil, club-shaped at each end, and breaks up into irregular, short, wavy bodies from which the *Spirochæta pallida* develops. The microgamete must then penetrate the macrogamete forming a zygote which divides into two and then four, each being

a sporoblast. Each sporoblast divides to form numerous sporozoites which start the cycle again. The infection is probably carried by these sporozoites, and not by the *Spirochæta pallida*. The syphilitic parasite, if the above be correct, would thus belong to the order Sporozoa, and to the subclass Telosporidia, since the spores are formed at the end of the cycle. These spores may persist in spite of treatment with salvarsan, and thus may be responsible for recurrences in the disease. A. NINIAN BRUCE.

PSYCHIATRY.

CRYÆSTHESIC HALLUCINATIONS IN DEMENTIA PRÆCOX.

(672) (**Hallucinations cryæsthésiques dans un cas de démence précoce**). HALBERSTÄDT, *Arch. Internat. de Neurol.*, Année 34, Sept. 1912, p. 177.

HALBERSTADT has observed, for more than four years, a woman of 46, suffering from dementia præcox, who has persistently complained of a sensation of coldness all over her body, but chiefly on limbs and thorax. Sometimes she complains of currents of cold air; she says they come from an upper floor. Great care has been taken to exclude the element of draughts or cold temperature. The cryæsthesia is not explained by her physical state: there is no definite evidence of hypothyroidism, nephritis, or circulatory troubles. Halberstadt enters a plea for a closer study of painful thermal sensations in the insane.

LEONARD J. KIDD.

AUDITORY HALLUCINATIONS IN DISEASES OF THE EAR.

(673) (**Gehörstäuschungen bei Ohrerkrankungen.**) O. KLIENEBERGER, *Allg. Ztsch. f. Psych.*, 1912, Bd. 69, H. 3.

THE report of three cases of auditory hallucinations associated with middle ear disease in patients over fifty with arteriosclerosis; the hallucinatory condition improved under treatment of the ears. The author emphasises the importance of a psychotic factor, inherited or acquired, as well as of the peripheral disorder for the development of the symptom. C. MACFIE CAMPBELL.

ON THE MECHANISM OF THE FORMATION OF DELUSIONS.

(674) (**Ueber die Mechanik der Wahnbildung.**) E. VON NIESSL-MAYENDORF, *Allg. Ztschr. f. Psych.*, 1912, Bd. 69, H. 3.

A THEORETICAL discussion of the origin of delusions based on the facts of brain localisation and on general physiological principles.

C. MACFIE CAMPBELL.

ON THE USE OF SALVARSAN IN PSYCHIATRY. (Zur Anwendung des Salvarsans in der Psychiatrie.) A. PFUNDER, *Allg. Ztschr. f. Psych.*, 1912, Bd. 69, H. 1.

(675)

THE report of the treatment of sixteen cases with salvarsan. Seven patients were cases of general paralysis, the course of which was not demonstrably influenced by the administration of the drug; in none of these cases did the Wassermann reaction become negative. In two syphilitics (Korsakoff complex, recurrent depression) improvement of the syphilitic symptoms followed the injection. Other cases with a history of syphilis but no actual clinical manifestation of the disease showed no improvement after the injection.

C. MACFIE CAMPBELL.

Reviews.

RIGNANO, EUGENIO, UPON THE INHERITANCE OF ACQUIRED CHARACTERS, A HYPOTHESIS OF HEREDITY, DEVELOPMENT, AND ASSIMILATION: authorised English Translation by BASIL C. H. HARVEY, Assistant Professor of Anatomy, University of Chicago; with an Appendix upon the Mnemonic Origin and Nature of the Affective or Natural Tendencies. Chicago: The Open Court Publishing Co., 1911.

(676)

DARWINISM is generally held by its followers to have three factors: Variation, the Transmission of Variation, and Natural Selection. The accumulation of minute variations was held to result in the production of a variety or species, but this view is practically now abandoned. It has been shown that such variations do not accumulate and strengthen, and the mutation theory of de Vries and Mendelism have further shaken this view.

What gave Darwinism its vitality was the theory of natural selection, but it is now disputed that natural selection has a transmissible creative effect and it is probably merely eliminative in its action.

The fallacy in thus settling the factors is that the assumption is tacitly made that variations have only an extrinsic causation, and that they are not due to an intrinsic power in the germ cells themselves. Any argument on the three factors is vitiated by the exclusion of such an intrinsic power in the germ plasma. The question of the transmission of variations is, however, a most important point. If we grant variations as having an extrinsic causation, can such be transmitted? Can acquired peculiarities be handed on to posterity? This is the problem Rignano attacks and solves in the affirmative.

The author, as Dr Basil Harvey tells us in his excellent

translation, is a biologist with the training of an engineer and physicist, and this gives his views a special value, as the consideration of such a question from the standpoints of physics and mechanical science is from a fresh one, and avoids the bias which often results when the usual purely biological method is followed. Further, the author is a Lamarckian,[1] and therefore its translation by an American biologist. Lamarckism[2] is still a favourite theory in America, but it is now a biological heresy, although one can freely admit the great service it did in Evolution by carrying on the torch of evolutionary research even although the path it illuminated has been an erroneous one and has ended in a *cul de sac.*

The author has, however, in his theory of centro-epigenesis, firmly grasped the continuity of the germ plasma, and this saves his general conclusions from complete disaster as we shall see.

The author ignores Mendelism, a remarkable omission in such an able and learned writer. The reason is evident. One of Mendel's great merits is that his crossing experiments and their results can be interpreted best as crossings of the autonomous determinants of the contrasted qualities, in the germ plasma of the new zygote, an intrinsic mechanism there, and it is this that shakes to its very foundation any extrinsic causation of variation with a hypothetical transmission from the part of the soma affected to the germ plasma. Finally, he does not consider any possibility of the occurrence of variation from the mitoses of the germ cells and the loss of polar bodies with determinants in them prior to fertilisation.

With this preliminary consideration we can now take up this research in detail.

In Chapter I. Haeckel's law and what the author terms centro-epigenesis are taken up.

Haeckel's law—the recapitulation of the past evolution of an animal (phylogeny) in its present development (ontogeny) is a corollary to the theory of evolution. It may be represented best by a simile. An old building begun in Saxon times and persisting till the present will exhibit in its structure the influence of many architectural epochs—Saxon, Norman, Gothic, and many others—until it is a conglomerate of them all. Some of them would be more prominent (the recent ones), others partly decayed (the older ones). Now, if a replica of this building were wanted the builder in his reconstruction would necessarily have to recapitulate the Saxon, Norman, and other periods, and to build in the more or less

[1] The sum total of the facts and the arguments which are favourable to it (Lamarckism) is so weighty that one is not only not justified in believing, but is even compelled to believe, that the Lamarckian principle is in all probability correct (*op. cit.*, p. 223).

[2] *See* Packard's interesting "Life of Lamarck."

ruinous portions. The building could not be built exactly on modern lines and for modern necessities, but its history and evolution would give elementary stages. The builder would construct according to Haeckel's law—the recapitulation of phylogeny in ontogeny is a necessity of evolution and forms the palimpsest of the evolutionist who will go far astray if he neglects it. Rignano puts it well when he says: "In other words, the biogenetic law implies that up to each stage of the development the productive law of development remains the same as that which produced the ancestral species corresponding to that stage" (p. 15). "Centro-epigenesis" is a combination of the continuity of the germ plasma ("the germinative zone") and the continued action of the nervous system—and this "includes a continuous action exercised by the germinal substance upon the soma throughout the whole duration of its development" (p. 17). To get this influence of the centro-epigenetic centre it is supposed that the cells are connected by protoplasmic filaments, and "that through the intercellular bridges of the epidermis, for example, there go similar nervous currents, in which when once the organism has attained its adult age dynamic equilibrium is established" (p. 35). The introduction of such phrases as "nervous currents" and "dynamic equilibrium" is weak. The influences cannot be strictly nervous, while the second phrase reads well, but after all means nothing.

It would take up too much space to consider all the facts and theories brought forward to rehabilitate the view of the transmission of acquired injuries, but the summary at p. 356 is as follows, and on it some final remarks may be made:—

"As the reader who has followed us thus far has already noted, there are three new hypotheses or three new fundamental conceptions which we submit to the judgment of biologists and positive philosophers in general. Although they support one another mutually, and all rest upon the same general idea of the vital phenomenon, they are, nevertheless, independent of one another, especially the first two are independent of the third.

"The first is the hypothesis of centro-epigenesis, which we, as was said in the preface and explained in the first chapter, were led by the fundamental biogenetic law of the repetition of phylogeny by ontogeny with all its more or less mediate or immediate results.

"The second hypothesis is that according to which each specific nervous current deposits a very definite substance which in its turn is capable of provoking again exclusively the same specificity of current as that by which it was itself deposited. This idea has enabled us, on the one hand, with the aid of the centro-epigenetic hypothesis, to explain directly the inheritance of acquired characters; and has, on the other hand, by itself alone afforded the immediate explanation of all the mnemonic phenomena in the

widest sense of the word, from histologic specialisation, in consequence of which the cells answer always only in the same accustomed way to the most different accidental stimuli, up to the psychomnemonic phenomena of memory properly so called.

"The third hypothesis attributes the vital phenomenon essentially to an intranuclear oscillating nervous discharge; and this idea has enabled us with the help of the above mentioned second hypothesis of specific accumulators to explain likewise the fundamental property of the life phenomenon which consists in assimilation."

The first hypothesis is on right lines undoubtedly.

The weak points in the second hypothesis are that of the "specific nervous current." There is no such nervous current, and the term is merely a verbal one and not explanatory. The parallel drawn between the germ plasma supposed to be influenced by a somatic variation, and an electrical accumulator with the influence of the latter express in terms of electromotive force, is a mere statement of the biological problem in electrical terminology, is not explanatory of his hypothesis, and merely substitutes one difficulty for another.

The facts usually brought forward by many authors as to the transmission of parental acquired peculiarities by the offspring are of the most meagre nature. If such injuries could be transmitted, mankind would be an accurate record of the misfortunes and sins of its ancestors. The complete reverse is the case. The persistence of the research for a Lamarckian or Darwinian explanation of variation is due to the assumption in fixing the three factors making up Darwinism, that there is no intrinsic factor in the germ plasma.

This research is well worthy of perusal, as the facts brought forward are accurately recorded, and the author writes clearly and succinctly. As a refutation of Weismann's belief in the nontransmission of acquired peculiarities it seems to us inadequate, and the theory he brings forward is based on electrical and other analogies which merely restate the original problem without solving it.

D. BERRY HART.

STUDIES IN PSYCHIATRY. Vol. I. By MEMBERS OF THE NEW YORK (677) PSYCHIATRICAL SOCIETY. (Nervous and Mental Disease Monograph Series, No. 9, 1912.)

THIS excellent collection of papers by members of the New York Psychiatrical Society, covering as it does the greater part of the field of psychiatry, is a striking testimony to the scientific spirit in which this branch of medicine is studied in America. Both the psychological and the histopathological schools are well represented in the volume, which includes fourteen articles and a list of the papers read before the New York Psychiatrical Society.

"The Insane in Japan" is an interesting account by Dr Frederick Peterson of the progress of psychiatric science in Japan from the earliest times, and of the present methods of dealing with the insane in that country. The feature which most impressed the author on a recent visit to Japan was the extraordinary quietness of the wards, which he traces to that training in the repression of emotional expression which is so peculiar to the Japanese. The account of the village asylum of Iwakura, which is described as the ideal asylum of the world, will be found specially interesting. In "A Study of Race Psychopathology" Dr Kirby gives the result of his observations on the curiously mixed material of the Manhattan State Hospital, which offers unrivalled opportunities for research in comparative psychiatry, owing to the cosmopolitan character of its inmates. Several interesting facts emerge from the investigation, such as the proneness of the Irish to develop alcoholic disorders and the almost complete immunity of the Jew from alcoholic insanity, the proportionately high percentage of negroes who develop general paralysis, and the fact that the English stand the highest in the dementia præcox group. Dr Charles Dana states his conviction in "The Curability of Early Paresis" that general paralysis can be arrested if taken at an early stage and treated energetically with antisyphilitic remedies. He supports his statement with a number of illustrative cases. The criticism which, of course, suggests itself is to object that general paralysis in the early stages is very easily mistaken for such a condition as cerebral syphilis, but some of Dr Dana's cases are certainly very convincing. "The Diagnosis of General Paralysis" by Dr Macfie Campbell is another paper which discusses very fully the question of diagnosis from the psychiatric and from the histopathological sides. Dr Campbell points out that a study of the particular form of dementia may be of value in the differential diagnosis. Two papers on "Clinical Varieties of Periodic Drinking" and "Delirium produced by Drugs" call for no special comment. Drs Adolf Meyer, Hoch, and Cotton contribute an excellent group of papers on dementia præcox, in which the subject is considered from the point of view of habit disorganisations, and the relationship between hysteria, psychasthenia and dementia præcox is brought out. This subject is one of the most difficult and abstruse in the whole of psychiatry, and one welcomes papers such as these which discuss it with philosophic breadth. Drs Diefendorf and Dodge record the results of an experimental study of the ocular reactions in the psychoses by means of photographic records, a branch of study which has been specially developed in America, but which is little known in this country. The ocular movements were recorded by means of a beam of light which was reflected from the cornea on to a photographic plate. In mania the eye movements were found to

be much more rapid than in melancholia, in dementia præcox and general paralysis they were abnormally rapid, and in epilepsy they were markedly prolonged. An interesting paper which covers almost entirely new ground is "The Eye Syndrome of Dementia Præcox," by Drs Tyson and Pierce Clark. The authors describe a new syndrome which they found to be very constant in dementia præcox and absent in all the other psychoses. The new syndrome is constituted as follows: congestion and œdema of discs or pallor of discs especially on the temporal side, dilatation of veins, contraction of arteries, and slight blurring of the edges of the discs, dilatation of the pupils, contraction of the visual field, especially for colour, and diminution of corneal sensibility.

The majority of the papers are suggestive, the method of treating the various subjects is fresh and stimulating, and the whole collection will well repay a careful perusal by the student of psychiatry anxious to keep abreast of modern thought and modern methods of research. W. BOYD.

DIE TABES DER FRAUEN, von KURT MENDEL und ERNST TOBIAS. (678) Berlin, 1912, S. Karger. Price 2 M. 50.

THIS valuable monograph, which is a reprint from the *Monatsschrift für Psychiatrie und Neurologie*, Bd. xxi., is based on the study of 163 cases, 151 of which occurred in the writers' policlinic and 12 in their private practice. In the opening chapters they discuss the relative frequency of tabes in the two sexes, the influence of occupation and civil state, and the periods of life in which the disease appears. In an interesting section on the fertility of tabetic women they state that whereas under normal circumstances 10 to 15 per cent. of all marriages are childless, the percentage of childless marriages in their cases is 59. In 28 per cent. of these the childlessness was due to absolute sterility, and in 31 per cent. to abortions, miscarriages, and still-born children. Twenty pages are devoted to the important question of the relation of tabes to syphilis. 81 per cent. of the present series could be regarded as syphilitic: in 37 out of 41 in which Wassermann's reaction was performed the result was positive. No satisfactory explanation is offered for the surprising fact that the incubation period of tabes is shorter in the treated than in the untreated cases of syphilis, but it is suggested that mercury may exercise an unfavourable influence upon a predisposed nervous system. The rest of the work is taken up by a statistical survey of the various symptoms presented by this series, and by a comparison between masculine and feminine tabes. Seven pages are devoted to the bibliography. J. D. ROLLESTON.

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Review
of
Neurology and Psychiatry

Original Articles

THE SENSORY FIBRES OF THE PHRENIC NERVE.

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THE presence of sensory fibres in the phrenic nerve is usually overlooked, but recently attention has been called to it by Kidd (1). Some two years ago I carried out experiments, chiefly upon dogs, to ascertain what part impulses passing up afferent fibres in the phrenic nerve play in the control of respiratory movements. These early showed that such impulses were of little importance in normal respiration, but afforded experimental evidence, in support of previous observers, of the existence of sensory fibres. This will be presented here together with a few observations upon the structure and function of certain small branches of the nerve.

Anatomical Considerations.

The phrenic nerve in the dog rises by two or three roots from the cervical plexus, the ultimate origin being from the fourth, fifth, and sixth cervical spinal roots. The uppermost root is long and lends itself to successful stimulation; the lowest root is short and situated deeply near the subclavian vein, so that spread of stimulation to the numerous nervous structures in this region is not readily prevented. The third root, which is frequently absent, usually arises from one of the large heads of the median nerve, and passes to join either the long or the short root, usually the former. A branch from the phrenic nerve to the middle cervical ganglion, the so-called inferior cervical ganglion, in the dog, was

frequently found (*cf.* Lim Boon Keng (2), Ellenberger, and Baum (3)). This anastomosis with the inferior cervical ganglion is of almost constant occurrence in man. Several anatomists have described in man a reinforcement of the superior cardiac nerve by branches of the phrenic (see Kidd (1)). This I have never found in the dog, but in half a dozen cases there was present on the left side a communication between the phrenic and the ganglion stellatum. This branch is usually about 1 cm. long, and for the greater part of its thickness is composed of fat. Examination after staining with osmic acid shows many non-medullated fibres, some medullated fibres about 18 or 20 μ in diameter, equal in number to about a fifth of the non-medullated fibres, and a few small medullated fibres about 4 μ in diameter. Branches are given off from the phrenic nerve to the heart or its coverings. On the right side these fibres leave the phrenic near the diaphragm, and ascend in two strands along the inferior vena cava to be distributed to the pericardium, one branch going to the auricular portion. This arrangement corresponds with that described by Luschka (4) in man. Two branches given off from the left phrenic as it passes behind the heart, pass to the pericardium. Microscopic examination shows them to be composed of an extremely small number of fibres, usually about twelve middle-sized medullated fibres, and a similar number of non-medullated fibres.

The Work of Former Observers.

The suggestion that the phrenic nerve had a sensory function probably arose in the first place from the clinical side. In 1866 Falot (5), who was himself the sufferer, described a disorder somewhat resembling angina pectoris under the title, "De la névralgie du nerf phrenique." Peter (6) (1871), of whose work Kidd has made a comprehensive summary, was the first to consider the subject of phrenic neuralgia thoroughly, and the condition obtained greater recognition (see for example Erb (7)). Clinical workers accepted without inquiry the statement made in some of the older text-books—a statement in support of which no evidence was adduced—that the phrenic nerve contained sensory fibres. Henle (8) (1871), who gives a very full account of the distribution of the nerve, made such an assertion merely upon the ground that the nerve

sent fibres to the pleura, pericardium, and peritoneum, and Schwalbe (9) advanced a similar statement without any further evidence.

Ferguson (10) attempted a proof by degeneration methods. His crucial experiment—apparently only one such was performed—consisted in section of the third, fourth, fifth, and sixth cervical roots in the cat, just distal to their ganglia. Examination on the tenth day showed degeneration of the fibres of the phrenic. Diaphragmatic anæsthesia was found on the side of the operation before the animal was killed, but no details are given as to how this was tested.

I have attempted to repeat Ferguson's experiments, and found it extremely difficult to cut the roots at the place stated without damaging the anterior roots. In my opinion it is quite possible that portion of the degeneration observed by Ferguson was due to an injury of this nature; at any rate, it is a sufficiently likely occurrence to cause one to regard the evidence derived from this single experiment with great caution.

Incontestable evidence, which is usually overlooked, was first afforded by Sherrington's examination of an amyelous fœtus (11). In this fœtus the sensory side was completely developed while the motor side was absent, no trace of any ventral spinal roots existing. Sherrington writes: "The phrenic nerve is traceable from the diaphragm up through the thorax and neck to two filaments of origin, the larger of which comes from the fourth cervical ganglion, the smaller from the fifth ganglion." No more conclusive evidence than this could be desired.

Sherrington does not discuss the distribution of the fibres to parts other than the diaphragm; he was concerned only with the question of sensory nerves from muscular structures.

The *earliest* evidence, however, came from the experimental side. In 1868 Kowalewsky and Adamuk (12) obtained a considerable rise of blood pressure upon stimulating the central end of the phrenic nerve in curarised cats. These results were repeated and confirmed by Kowalewsky and Nawrocki (13), who also obtained a rise of blood pressure from stimulation of the central end of other muscle nerves.

Schreiber (14), using mechanical or electrical stimuli, obtained a rise of blood pressure, sometimes 25 mm. Hg., on stimulating the central end of the nerve.

v. Anrep and Cybulski (15), who employed dogs, cats, and rabbits, anæsthetised with chloral and curarised, observed a considerable rise of blood pressure and sometimes rhythmic waves. They also observed effects upon respiration which varied with the strength and duration of the stimulus. The main result was increase in rate and depth of respiration, occasionally followed by slowing. In one case with a strong current, expiratory standstill was seen.

Spina (16), working upon rabbits narcotised with opium, observed that when the muscles of the chest or the upper abdominal wall were mechanically stimulated, for example by pinching, slowing of respiration sometimes took place. This effect was particularly marked in muscles from which the skin and the peritoneal lining had been removed. The slowing was a constant occurrence when the inner surface of the abdominal wall, denuded of peritoneum, was pinched; the nearer the diaphragm, the more marked the retardation. If the attachments of the diaphragm itself were stimulated, an active expiration set in, during which the diaphragm remained inactive. Stimulation of parts covered with peritoneum, such as the central tendinous portion, was without effect. Spina considered that the diaphragm was supplied with a mechanism capable of inhibiting its own contraction.

Baglioni (17) investigated specially the sensory action of the phrenic, having in mind Sherrington's demonstrations of the importance of muscle sense nerves. Under special and peculiar experimental conditions he obtained what he considered expiratory movements, as a result of stimulating the central end of the phrenic nerve. He employed rabbits and recorded the movements of the alæ nasi. In inspiration the nasal orifices widen, in expiration they become narrow. In tracheotomised rabbits with both vagi cut, he opened the thorax after instituting artificial respiration; from the fact that movements of the diaphragm synchronous with the artificial respiration still occurred, he concluded there was no over-ventilation, and thus no tendency to apnœa. Upon stimulating the muscular peripheral portions of the diaphragm, and thus producing a long contraction, the nasal orifice at first opened widely for a moment, then narrowed and remained narrow. This result was not obtained if the phrenic nerves were cut—the nasal movements pursued their normal course. He did

not obtain any general expiratory reflex, and application of stimuli to other parts of the parietal wall was without effect.

Deason and Robb (18), working upon cats and rabbits, showed that stimulation of the central end of the phrenic usually caused an increase in both rate and amplitude of respiratory movements, preceded in a few instances by a slight inhibition or irregularity. These results were sometimes seen at the moment when the nerve was ligated; they are no different from those obtained when any sensory nerve is stimulated.

Experimental Observations.

During the performance of a series of experiments upon the innervation of respiratory muscles, I have made observations upon the effects of stimulating the central end of the phrenic nerve or one or other of its roots in more than twenty-five dogs, in five rabbits, and as many cats. The dogs were anæsthetised with morphia and urethane, sometimes also with chloroform and ether; the rabbits with chloral hydrate, half a gram per kilo. body weight; and the cats with urethane. On several occasions decerebrate cats were employed. For investigations upon the blood-pressure changes the animals were also curarised.

Usually the long root of the left phrenic nerve was exposed, divided as low as possible, and placed in a shielded electrode. For electrical stimulation, the faradic current, obtained from a Léclanché cell, and a coil graduated in Kronecker units was used, great care being taken to prevent spread of current or pulling upon the nerve, both of which would affect adjacent roots of the brachial plexus. Mechanical stimuli, pinching or ligating the nerve, were also used.

Blood-pressure Changes.—The blood pressure was recorded by a mercurial manometer connected with the right carotid artery. To register respiratory movements a pneumograph à deux tambours, applied to the mid-thoracic region, was used; in several cases the total volume of air inspired and expired at each respiration was recorded over a period of a minute or so by means of a modification of Gad's aeroplethysmograph.

Effect upon the Blood Pressure.—In both curarised and non-curarised animals a rise of blood pressure constantly resulted from central stimulation of the phrenic, except in animals under deep

chloroform anæsthesia, where no change or a fall of pressure resulted. The rise was considerably less than that elicited in the same animal by stimulation of the sciatic nerve; it might have been due to stimulation of the muscle-sense nerves or of the nerves from the pleura, pericardium, and peritoneum. It was not possible to completely separate the action of these constituent fibres, but some information was derived in an indirect way. In a dog the chest was opened and the branches of the phrenic nerve to the diaphragm were divided low down. The effect of stimulating these branches by mechanical or by electrical stimulation was compared with the effect of stimulating the whole phrenic nerve in the neck (Fig. 1). It will be seen that the rise produced by stimulation of the whole nerve is the greater. Further it can be shown that stimulation of purely muscular nerves produces a rise of blood pressure, thus confirming Asp's original statement (19). As purely muscular nerves the hypoglossal and the sub-scapular nerves in a dog were employed. Stimulation of the central end of these nerves produces a marked rise of blood pressure, similar in form to that produced by stimulation of any sensory nerve, but of smaller extent than that produced through a nerve such as the sciatic. Spread was excluded by ligating the nerves above the point of stimulation, and again applying the stimulus; in this case no rise of blood pressure resulted, showing that the original rise had been due to stimulation of the muscle-sense nerve itself, and not to stimulation of adjacent sensory nerves. In rabbits subjected to deep chloroform anæsthesia, the reversal of blood pressure reflex observed by Bayliss (20) in ordinary sensory nerve was seen in the case of the hypoglossal (Fig. 2).

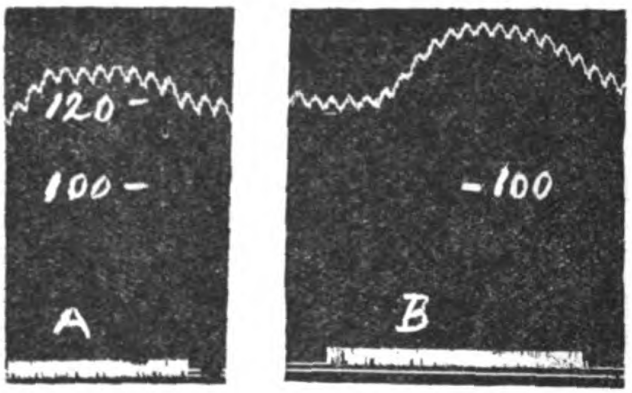

FIG. 1.—Stimulation of central end of left phrenic in the dog. A. Near diaphragn. B. In the neck. Faradic stimulation, equal in both cases.

Pinching and stretching the pericardium produces a rise of blood pressure which is distinctly lessened but not entirely abolished by section of the phrenic nerves in the neck; the pericardium has apparently a further sensory supply. Bochefontaine and Bourceret (21) in 1877 observed a rise of blood pressure of about 50 mm. Hg. upon pinching the inner surface of the pericardium of a curarised anæsthetised dog in which pericarditis had been induced by injection of silver nitrate some days previously.

In curarised dogs, pinching the peripheral muscular portion of the diaphragm from the thoracic side also produced a rise of blood

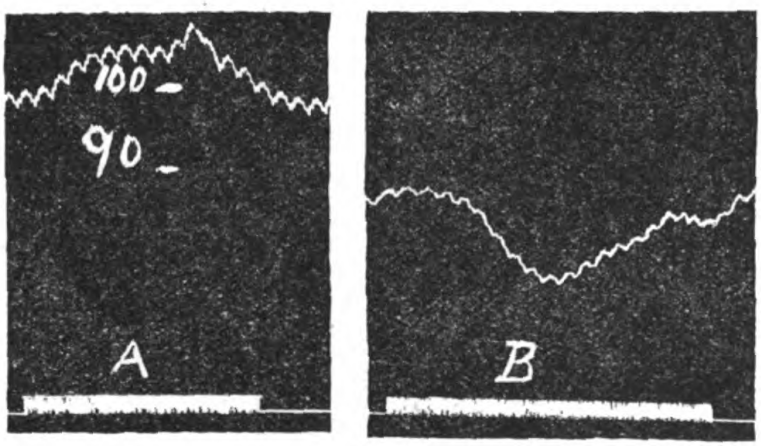

FIG. 2.—Reversal of blood pressure reflex from a muscle-sense nerve under deep chloroform anæsthesia in the rabbit. Stimulation of central end of hypoglossal. A. Under urethane. B. Under urethane and 3 p.c. chloroform.

pressure, not entirely abolished by section of the phrenics; this structure apparently also possesses a further sensory supply, probably through the intercostal plexus.

The Non-Medullated Fibres.—The afferent fibres in the phrenic, including those from the serous membranes, are presumably medullated fibres. There still remains the question as to what function the non-medullated fibres, found in the branch between the ganglion stellatum and the phrenic, and in the branch to the pericardium, possess.

Among other possibilities these fibres might be cardiac sympathetics reaching the heart by the roundabout course, or vasomotor fibres to the pericardium. The movements of the auricle

and ventricle of a dog's heart *in situ* were recorded by means of threads attached to light levers. The branches of the phrenics to the diaphragm were cut across, and the nerves were then stimulated in the neck and also at a point below where the connection with the stellate ganglion is made: in neither case was there any alteration in the rate or force of the heart beat.

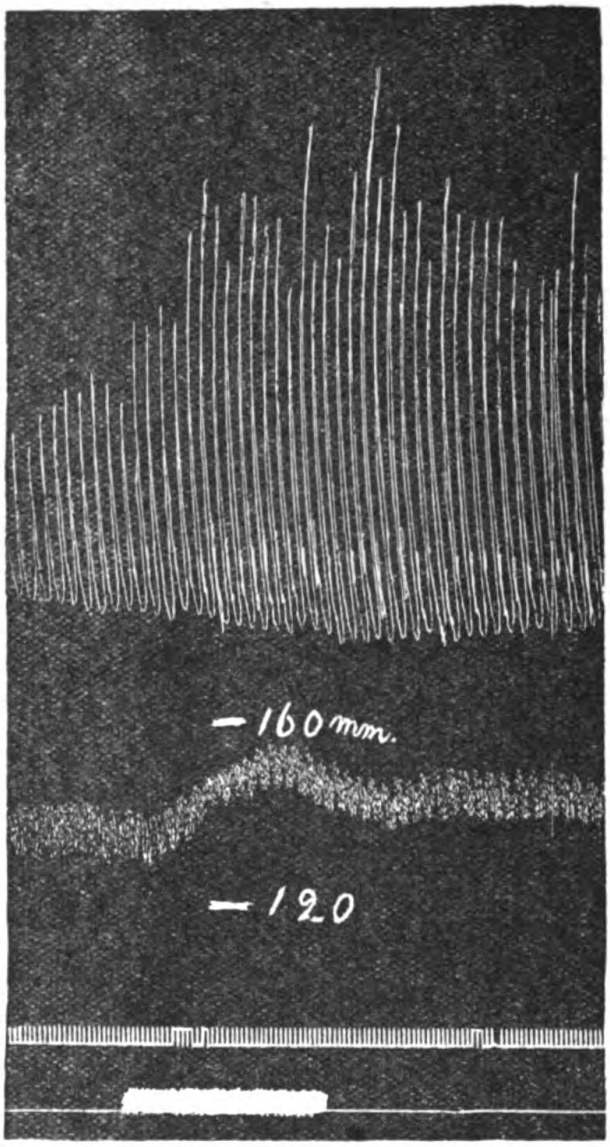

FIG. 3.—Effect of stimulating central end of left phrenic nerve in a dog under light anæsthesia.

Changes in Respiratory Movements.—In the dog the thoracic respiration showed, as a result of central phrenic stimulation, changes to those observed similar on stimulating any sensory nerve — increase in depth and frequency of the movements. The extent of these was profoundly influenced by the depth of anæsthesia. In animals deeply under morphia they were frequently absent, in other cases they were slight in extent. Comparison of the effects of stimulation of the phrenic and of the anterior crural by a weak stimulus —just perceptible on the tip of the tongue—and under deep anæsthesia, that the change in respiration is distinctly less in the

case of the phrenic. In this experiment stronger stimulation produced no greater change. In less deeply anæsthetised animals the change may be much greater, as shown in Fig. 3.

In the rabbit, Head's diaphragm slip method (22) was employed to ascertain whether by stimulation of the central end of the phrenic any change in the movements of the diaphragm takes place; the existence of afferent fibres in this animal was shown by reflex changes in blood pressure. Unfortunately, while the upper root of the phrenic nerve in the rabbit is of fair size, the lower root is extremely small. Thus when the upper root is cut and its

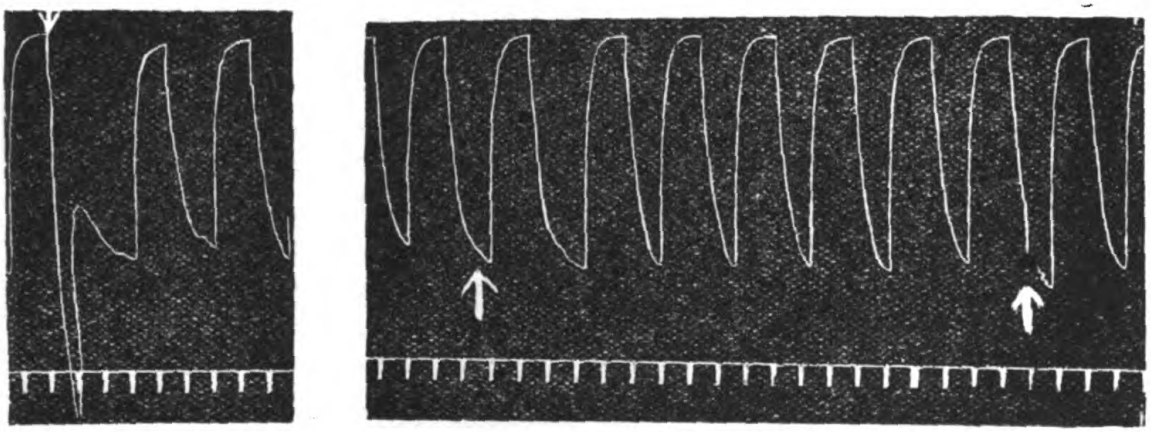

FIG. 4.—Movements of right diaphragm slip in the rabbit; downstroke = contraction. Both vagi cut. Inspiratory twitch on pinching central end of left phrenic.

FIG. 5—Similar preparation. Electrical stimulation of central left phrenic between the arrows, slight increase in rate.

central end stimulated, it is possible that no impulse sufficiently strong to be effective could pass down the lower root, but it is likely that in such circumstances the reflex effect would be manifested through the opposite phrenic. In five rabbits that were investigated, both mechanical and electrical stimuli of varying intensity being employed, little change in the contractions of either the homolateral or the contralateral diaphragm slip was seen. Occasionally there was a slight inspiratory twitch when the nerve was pinched (Fig. 4), and as a result of electrical stimulation a very slight increase of rate was seen (Fig. 5); no relaxation of the slip was ever evoked.

In none of my experiments was anything in the nature of an expiratory reflex observed, except that occasionally an inspiration in progress at the moment was arrested, a result seen at times with other sensory nerves.

It has been suggested that the effect of the phrenic might become more marked when the vagi were cut; since the function of the vagi as the afferent paths for an expiratory reflex might under these conditions be vicariously assumed by the phrenic nerves. Section of the vagi has, however, no such effect. The result of strong stimulation of the phrenic with both vagi cut and many other experiments show the same absence of effect (Fig. 6).

My experiments thus afford no support for the view, which is based upon insufficient evidence, that the sensory fibres in the phrenic carry impulses tending to bring about expiration. If they do possess such a function, it must be very unimportant in the normal regulation of respiratory movements. In this regulation, as Head's (22) work indicates, the afferent impulses passing up the vagus from the lung play the same part in regulating the action of the respiratory centre, as the muscle-sense impressions do in the regulation of ordinary muscular movements; impulses coming from the viscus moved supplant impulses from the muscles performing the movement. A somewhat similar condition was held to exist in the eye, but in this case although normally the main direction of the movements of the viscus comes from impulses received through the optic nerve, yet, as Sherrington and Miss Tozer (23) have shown, under conditions where the visual impulses are absent, direction of the eye can still be accomplished, by means of muscle-sense impulses coming from the extrinsic eye muscles. The conclusion from my experiments is that impulses from the diaphragm never assume this importance; though they probably play a part in the maintenance of reflex tonus of the muscle and in bringing about its steady co-ordinated contraction.

Summary.

1. The work of previous observers, demonstrating the power of afferent conduction in the phrenic nerve, is confirmed.

2. Stimulation of the central end of the phrenic nerve brings about a reflex rise of blood pressure due to excitation, partly of muscle-sense fibres from the diaphragm, partly of sensory fibres

from the serous membranes. Stimulation of the central end of purely muscular nerves, such as the hypoglossal and sub-scapular, evokes a similar rise of blood pressure. The pleura and pericardium have apparently additional sensory fibres to those supplied by the phrenics.

3. Stimulation of the central end of the phrenic nerve brings about an increase in rate and depth of respiratory movements, a result similar to that produced by stimulating any sensory nerve. In no case was any expiratory reflex evoked; sensory impulses passing up the phrenic nerve play little or no part in the normal regulation of respiratory movements.

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Abstracts

ANATOMY.

ON THE STRUCTURE OF THE MYELINATED SHEATH. (**Sulla**
(679) **struttura della guaina mielinica.**) CARLO BESTA, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 8, 1912, p. 449.

WHEN nervous tissue is fixed in alcohol at 96° C., and in mixtures of alcohol with nitric, hydrochloric, formic, and phosphoric acids, or in acetone mixed with any of these acids, or in a saturated solution of sublimate, it is possible to demonstrate in the myelin sheath a well-defined alveoreticular stroma. This stroma is in the majority of cases easily demonstrable on account of its fixing ammonium molybdate, and forming with it a resistant compound with the phosphotungstic hæmatoxylin of Mallory. In the blocks fixed with acetone and acids the stroma may be stained with toluidin blue.

With the greater part of the fixing solutions cited, another element of the sheath can be demonstrated in the shape of well-defined granules situated in the alveoli of the network formed by the stroma or the sheath. These granules can be stained by toluidin blue, and in tissue fixed in acetone and nitric acid they combine with molybdate and hæmatoxylin. In nervous tissue fixed in pyridine, or in pyridine with nitric acid, neither of the two sheath elements can be demonstrated. The two elements are differently affected by chloroform, benzene, or xylol—the granule being dissolved whilst the reticulated sheath structure remains. The author inclines to the view that the structures he has demonstrated in the myelinated sheath are not artifacts, but adduces little evidence in support of his opinion. He proposes, however, in a future paper to demonstrate that the granules and reticulum undergo characteristic changes in pathological processes.

F. GOLLA.

NERVE FIBRILS IN THE SINO-AURICULAR NODE. B. S.
(680) OPPENHEIMER and A. OPPENHEIMER *Journ. Exp. Med.*, Vol. xvi., No. 5, Nov. 1, 1912, p. 613.

ASIDE from the nerve fibres which enter the pace-making node from the subepicardium, there were observed within the limits of the node a few ganglionic cells and a plexus of moniliform nerve fibrils

in very close relation to its muscle fibres, hence the sino-auricular node, like the auriculo-ventricular, may be considered from a histological standpoint a neuro-muscular organ.

A. NINIAN BRUCE.

PHYSIOLOGY.

RESEARCHES ON THE CORTICAL EXCITABILITY IN DOGS

(681) **AFTER EXTIRPATION OF HALF OF THE CEREBELLUM. (Ricerche sulla eccitabilita della corteccia in cani sottoposti ad emiesterpazione cerebellare.)** G. ROSSI, *Archiv. di fisiol.*, Vol. 10, Fasc. 3, 1912.

AN immediate consequence of hemiextirpation of the cerebellum in the dog is a diminution of the excitability of the cortical motor area of the opposite side. This diminution may be observed during the whole period during which symptoms of cerebellar insufficiency predominate. The establishment of cerebellar compensation is accompanied by a marked augmentation of the excitability of the opposite motor area. These alterations of excitability were only observed in a limited area of the motor cortex, that for flexion of the front and hind limb. The author was unable to cover the field of the whole motor area with his experiments, as he found that when a stimulus is applied too frequently to the cortex uncertain and contradictory results are obtained. The results of the author differ from those of Risien Russell in that while the author obtains a diminution of excitability Russell found an increased excitability of the opposed motor cortex a few minutes after ablation of the cerebellum in its opposite half. The author is unable to account for the divergence between his own results and those of Risien Russell.

F. GOLLA.

ON THE RESULTS OBTAINED FROM SIMULTANEOUS STIMU-

(682) **LATION OF THE CEREBRAL AND CEREBELLAR CORTEX. (Sugli effetti consiguenti alla stimolazione contemporanea della corteccia cerebrali e di quella cerebellare.)** G. ROSSI, *Archiv. di Fisiol.* Vol. x., Fasc. 5, 1912.

FARADISATION of all the parts of the cerebellar cortex that were studied, *e.g.*, crus primum, crus secundum, lobulus paramedianus, increase the excitability of the cerebral cortex on the opposite side.

Stimulation of these areas does not, however, modify the excitability of the cerebral cortex on the same side. Stimulation of the vermis also increases cortical excitability. Very weak stimulation of the cerebellum is sufficient to obtain the above-mentioned results.

It appears that application of strychnine solutions to the cerebellar cortex increases the excitability of the contralateral cerebral cortex. Cooling of the cerebellar cortex does not modify the excitability of the cerebral cortex. P. GOLLA.

THE INFLUENCE OF MUSCULAR RIGIDITY ON THE CARBON DIOXIDE OUTPUT OF DECEREBRATE CATS. (683) H. E. ROAF, *Quart. Journ. Exper. Physiol.*, Vol. v., No. 1, 1912, p. 31.

RIGIDITY (produced by decerebration) differs from tetanus, in that the CO_2 output of the animal is less in the former case than with the latter. Decerebrated animals, which were treated with curare, or in whom the nerves to the extremities were cut, or if both limbs were amputated, showed no diminution in the CO_2 output. Decapitation or section of the cord, however, caused a lowering of the CO_2 output. This also applies to all those animals in whom all the viscera were removed.

The author concludes from his experiments that a large amount of the CO_2 output is produced by some other part of the organism than the abdominal organs or skeletal muscles.

R. A. KRAUSE.

ON THE PRODUCTION OF EXPERIMENTAL CEPHALIC COMA. (684) D. E. JACKSON, *Journ. Pharmacol. and Exp. Therap.*, Vol. iv., No. 1, Sept. 1912, p. 33.

IF a few drops of chloroform be injected into one of the (intact) femoral arteries the substance will be at once carried into the corresponding hind limb. Within one or two seconds the muscles and tissues which have been reached by the chloroform become hard, firm, and lifeless. The action appears to consist in a direct chemical coagulation of the living protoplasm of the cells, the death of which seems to be instantaneous, and no return to normal was ever seen.

A method is described here by which chloroform may be injected into the vertebral artery, from which it passes to the circle of Willis and thence to all parts of the brain. The jugular veins are then tied to prevent the flow of blood from the head back to the heart.

The author claims that animals may be kept alive in this way for a whole day, and that the blood pressure, temperature, and general vitality are nearer to that in normal animals than in those whose cord has been divided or brain destroyed. He applies the term *cephalic coma* to the condition thus produced.

A. NINIAN BRUCE.

THE INFLUENCE OF CALCIUM ON THE RESPIRATORY
(685) **CENTRES. (Influenza del calcio sui centri respiratori.)** V. M. BUSCAINO, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 9, 1912, p. 518.

INTRACAROTID injections of calcium chloride were found to exercise an inhibitory action on the respiratory centre. The respiratory rhythm was slowed and the excursions diminished. This effect could not be obtained if a preliminary administration of oxygen had caused partial apnœa. In this case the calcium appeared to have a stimulating action. Carbon dioxide neutralises the depressing effect of calcium on the respiratory centre and the same neutralising effect was found when sodium carbonate was injected into an animal under the influence of calcium. Caustic soda, which in the normal animal has a depressant effect on the respiratory centre, also showed a neutralising power over the inhibitory action of calcium. This was also true of hydrochloric acid. Oxygen administered to an animal injected with calcium still further depresses the respiratory centre. Salts that immobilise the calcium ions (Sabbatani), *e.g.*, phosphates, sulphates, oxalates, citrate of soda, often cause an increased rapidity and increased depth of respiration. F. GOLLA.

ON THE ACTION OF CURARI APPLIED DIRECTLY TO THE
(686) **NERVOUS CENTRES. (A proposito dell' azione del curaro applicato direttamente sui centri nervosi.)** G. PAGNO, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 9, 1912, p. 513.

A SCATHING criticism of a paper on the same subject by Amantea in the *Archivio di farmacologia sperimentale*, July 1912.

F. GOLLA.

ON FEEDING YOUNG WHITE RATS THE POSTERIOR AND
(687) **ANTERIOR PARTS OF THE PITUITARY GLAND.** T. B. ALDRICH, *Amer. Journ. Physiol.*, Vol. xxxi., No. 2, Nov. 1912, p. 94.

THE addition of posterior and anterior lobes of the ox pituitary to the daily food of white growing rats does not cause any increase of growth as compared to the controls; with the anterior lobes it even seemed as if they hindered the growth. R. A. KRAUSE.

THE IODINE CONTENT OF THE SMALL, MEDIUM, AND LARGE
(688) **THYROID GLANDS OF SHEEP, BEEF, AND HOGS.** T. B. ALDRICH, *Amer. Journ. Physiol.*, Vol. xxxi., No. 2, Nov. 1912, p. 125.

FROM an analysis of the iodine content of various thyroids by Hunter's method (*v. Review*, 1911, ix., p. 319), the author concludes, that for therapeutic purposes the thyroids of the pig and ox should be used rather than those of the sheep.

R. A. KRAUSE.

PATHOLOGY.

THE PATHOLOGICAL FINDINGS IN SERIAL SECTION IN A CASE OF WORD DEAFNESS. (Der Sektionsbefund in Serienschnitten bei einem Fall von Worttaubheit.) BLOSEN, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliii., H. 1-2, 1912, p. 93.

(689)

THE patient was a man of 46, who in December 1905 had a stroke producing motor aphasia without paralysis. In May 1907 he had a second stroke, producing permanent word deafness. He understood only a few simple questions. One-syllable words could be repeated, as a rule; two-syllable words were usually wrong. His vocabulary was very limited, and there was a certain amount of logorrhœa, paraphasia, and perseveration. He was able to copy from print into cursive handwriting. He was able to read, but without understanding, and with some paralexia. Subsequently, four areas of cerebral softening were found, three in the left hemisphere and one in the right.

1. The lesion destroyed the pars basilaris and pars triangularis of the third left frontal. Part of the pars opercularis was also destroyed. It extended into the precentral gyrus, involving the anterior half of the foot of that convolution. The under part of the posterior end of the second left frontal was also caught. The whole of the anterior part of the cortex of the island of Reil was softened.

2. The under half of the posterior two-fifths of the first left temporal convolution was involved in the lesion: the upper part and the transverse convolutions were normal. The margin of the second temporal convolution corresponding to that part of the first which was the site of the lesion, was diseased.

3. There was a small superficial cortical lesion in the posterior half of the left supramarginal gyrus.

4. The anterior four-fifths of the first and second right temporal convolutions were softened.

Notwithstanding the bilateral temporal lesion, there was no central deafness—a fact, however, that is readily explicable.

S. A. K. WILSON.

THE PATHOLOGICAL ANATOMY OF A CASE OF SPASTIC SPINAL PARALYSIS OF FAMILIAL TYPE. (Reperto anatomo-patologico in un case di paralisis spinale spastica eredofamiliare e considerazioni cliniche sulla spasticità acquisita e congenita.) O. FRAGNITO, *Annal. di Nevrol., Ann.* xxix., F. vi., 1911, p. 319.

(690)

THE author gives an account of a case of the familial spastic spinal paralysis of Strümpel in a woman who began to suffer from paralysis of the lower extremities when aged 28. A slight spasti-

city of the legs was the only noticeable symptom for two years. Later the upper extremities were involved and finally there was some degree of dysarthria and dysphagia. Deep reflexes were everywhere exaggerated. There was double extensor plantar reflex and ankle and patellar clonus. The abdominal reflexes were feeble (*sic*). The pupillary reflexes were normal. The patient was a prostitute. The father and an uncle of the patient had also suffered from spastic paralysis. Post mortem the grey matter of the cerebrospinal axis was everywhere found to be intact. The only lesion consisted in the presence of a large number of very fine nerve fibres that occupied the place of the fibres of normal calibres which were represented as a very small number. The lesion was most marked in the lateral column especially at the level of the upper part of the lumbar enlargement. The tract of Gowers, the direct cerebellar tract, and the lateral pyramidal tracts were also affected in a decreasing degree of intensity. The pathological change could be followed to the level of the pons, above this there were no morbid conditions noted. The author notes that, if in congenital cases of spastic paraplegia we can talk of hypoplasia of the nerve fibres, in this case which began at twenty-eight years we have to do with a true atrophic process. F. GOLLA.

A CONTRIBUTION TO THE KNOWLEDGE OF THE PATHO-
(691) **LOGICAL ANATOMY OF CHANGES IN THE CENTRAL NERVOUS SYSTEM IN URÆMIA. (Contributo allo studio dell' anatomia patologica dell' sistema nervoso nell uremia.)** C. SILVAN, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 7, 1912, p. 410.

A CASE of uræmic dyspnœa that was not diagnosed during life. The autopsy revealed well-marked granular kidney. Some chromatolysis of cells in the bulbar nuclei was found together with small collections of round cells in the perivascular sheaths of the venules without, however, any infiltration of the surrounding nervous tissues. F. GOLLA.

ON THE ACTIVITY OF THE PARATHYROID GLANDS FOR THE
(692) **REMOVAL OF POISON IN NEPHRITIS. (Über die entgiftende Tätigkeit der Parathyreoidea bei der Nephritis.)** M. GEORGOPULOS, *Ztschr. f. Klin. Med.*, Vol. 76, H. 3-4, 1912, p. 261.

THE author produced an experimental condition of uræmia in rabbits by the injection of uranium nitrate. From the results of his experiments he contends that the parathyroids have a de-toxicating influence in nephritis. He also puts forward the hypothesis that the poisons of uræmia (at least a part) which are inhibited by the action of the parathyroids, are secretory products of the chromaffine system. R. A. KRAUSE.

A CASE OF PARALYSIS AGITANS WITH MARKED ENLARGE-
(693) **MENT OF THE PARATHYROID GLANDS.** (**Ein Fall von Paralysis agitans mit bedeutender Vergrösserung der Glandulae parathyreoideae.**) G. GJESTLAND, *Ztschr. f. Klin. Med.*, Vol. 76, H. 3-4, 1912, p. 237.

THE post-mortem findings of a case of paralysis agitans showed a normal thyroid but definitely enlarged parathyroids, the largest being about 40 mm. long and 10 mm. in diameter. The case is of interest, as certain authors hold that paralysis agitans is associated with alterations in the parathyroids. The above case would tend to support this view. R. A. KRAUSE.

A METHOD FOR THE STAINING OF CHONDRIOSOMES. (**Pro-**
(694) **cedimento per la colorazione dei condriosomi.**) G. PAPADIA, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 5, 1912, p. 258.

THE presence in the citoplasm of those bodies to which Meves gives the name of chondriosomes has been the subject of much recent work. The author gives two new methods for staining these bodies of which one is as follows:—

The tissue is fixed twenty-four hours in a mixture of 100 parts of 3 per cent. bichromate solution and 10 parts of formalin. It is then transferred to 3 per cent. bichromate for six to eight days. After dehydration and clearing the tissue is embedded in paraffin and sections cut. The sections are immersed in a saturated solution of acid fuchsine for four minutes at 60° C., then washed in flowing water and passed through a solution of pure ammonium molybdate, 4 per cent., or immersed in 3 per cent. bichromate for two minutes. They are then washed in water and passed for thirty seconds through a saturated solution of lichtgrün (Grubler). After washing in distilled water, treated with alcohol and xylol and mounted. By this method the chondriosomes of the embryonic cells of the chick are coloured red, the nucleolus and the nuclear membrane green, and the rest of the cell in a lighter green. F. GOLLA.

NUCLEAR INCLUSIONS IN BORNA'S DISEASE OF HORSES, &c.
(695) (**Weitere Untersuchungen über die seuchenhafte Gehirnrückenmarksentzündung (Bornasche Krankheit) des Pferdes, mit besonderer Berücksichtigung des Infektionsweges und der Kerneinschlüsse.**) JOEST, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliv., H. 3, 1912, p. 206.

THE author describes, in various nerve cells of the central nervous system, cellular or rather nuclear inclusions consisting of small rounded or oval bodies, staining badly, with a dark out-

line, easily distinguishable from the nuclear network. These bodies he thinks are specific for Borna's disease; and supposes they are products of the reaction of the ganglion cells to the invasion of the virus of that disease, which is probably a parasite belonging to the group of the chlamydozoa. S. A. K. WILSON.

CLINICAL NEUROLOGY.

ON THE TOXIC GENESIS OF CONTRACTURE. (**Genesi tossica della contrattura. Esperimenti e critiche.**) V. M. BUSCAINO, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 6, 1912, p. 330.

(696)

THE author has already given in another paper arguments drawn from clinical grounds to support his theory that the contracture following interruption of the pyramidal tract is of toxic genesis. He considers that, owing to paralysis, there is an accumulation in the muscle itself of products of its own metabolism which provoke a continuous contraction of the muscle, partly by a direct action on the muscle and partly by acting as a continual stimulus to the afferent muscle nerve, thus causing a reflex increase in tonus.

In support of his thesis the author now publishes six experiments which he performed on dogs. The veins of one of the hind limbs were ligatured and the ease with which the limb could be passively moved was noted. It was found that about forty minutes after ligature of the veins the affected limb became immobilised in a semiflexed position, and that great resistance, which was measured by a spring balance, had to be overcome in order to straighten it. The author considers that the question of pain may be excluded inasmuch as during ligature of the veins the animals generally either dosed or slept! The remainder of the paper is devoted to answers to criticisms made on his theory by Noica. F. GOLLA.

CLINICAL OBSERVATIONS ON THE ORIGIN OF CUTIS ANSERINA. (**Klinische Untersuchungen über das Auftreten der Cutis anserina.**) H. KOENIGSFELD and F. ZIERL, *Deut. Archiv f. Klin. Med.*, Bd. cvi., 1912, s. 442.

(697)

THE authors examined the influence of various stimuli, mechanical, thermic, and electrical (galvanic and faradic), upon the formation of cutis anserina. On the application of any of these stimuli, they obtained a local as well as a semilateral formation of cutis anserina. The local reaction is due to a contraction of the mm. arrectores pilorum, whereas the semilateral reaction is a true reflex. The reaction is more marked and extends further in men and elderly

people, as well as in alcoholics and neurotic people; this is specially the case in tabes dorsalis.

When an electrode was applied to the skin just below the angle between the sterno-mastoid and the trapezius, the piloerection was a semilateral one affecting the body and extremities.

R. A. KRAUSE.

THE TOPOGRAPHY OF SENSORY DISTURBANCES IN NERVE LEPROSY. (Contributo clinico alla topografia dei disturbi sensitivi nella lepra nervosa). C. TODDE, *Riv. ital. di Neuropat. Psichiatr. ed Elettroter.*, 1912, v. p. 400.

(698)

A TYPICAL case of nerve leprosy in a man, aged 39, in whom improvement followed injections of chaumoolgra oil.

J. D. ROLLESTON.

A CASE OF MYATONIA CONGENITA. J. R. CHARLES, *Brit. Journ. Child. Dis.*, 1912, ix., p. 7.

(699)

A RECORD of a mild but typical case in a boy aged 6 years, illustrated with three photographs.

J. D. ROLLESTON.

CONCERNING A HITHERTO UNDESCRIBED FORM OF CUTANEOUS MUSCULAR DYSTROPHY. (Intorno ad una form sinora non descritta di distrofia cutaneo muscolare.) C. F. ZANELLI, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 6, 1912, p. 344.

(700)

THE patient was an 18-months old baby born of normal parents. From birth she was noted to have been undersized and very feeble. When brought to the clinic the following anomalies were noted: The skin was nowhere tense as in normal children, but hung in a series of flabby folds, which were especially marked over the nates, the abdomen, and the joints. The pannicula adiposa was well developed, especially over the thighs and buttocks. The muscles were ill developed generally and markedly hypotonic. There was a persistent congenital fistula in the neck, from which flowed a colourless fluid. Retrosternal dulness indicated an enlarged thymus. As regards the skeleton, the head was large, the pelvis was broad, and there was a slight lumbar lordosis; there were no disturbances of ossification. The reflexes were normal. The child could stand with difficulty, and was unable to walk without support, when the gait was waddling. The intelligence was normal. The case is said to have been improved by the exhibition of thyroid gland.

F. GOLLA.

HISTOLOGICAL FINDINGS IN A CASE OF TABES WITH
(701) **PSYCHOSIS. (Reperto istologico in un caso di tabe dorsale con psicosi.)** A. REZZO, *Riv. ital. di Neuropat., Psichiatr. ed Elettroter.*, 1912, v., p. 433.

THE patient was a man, aged 52, who began to show signs of mental disturbance about three years after the onset of tabes. The symptoms were ideas of persecution, auditory and visual hallucinations, and psychomotor excitement. Their duration varied from a few hours to a few days. Post mortem, typical lesions of tabes were found in the cord, most marked in the lumbo-sacral segment. In the brain the lesions were those of syphilitic meningo-encephalitis and not of general paralysis.

J. D. ROLLESTON.

OSTEITIS OF LOWER JAW IN TABES WITH ELIMINATION OF
(702) **LARGE SEQUESTRUM. (Ostéite du maxillaire inférieur chez un tabétique avec élimination d'un volumineux séquestre.)** GAUCHER, GOUGEROT, and MEAUX SAINT-MARC, *Bull. Soc. de Derm. et de Syph.*, 1912, xxii., p. 344.

THE patient was a man, aged 50, in whom the separation of the sequestrum had been preceded five years previously by painless loss of all the teeth in the upper jaw. Eighteen months later commencing osteitis of the lower jaw in addition to hemiplegia and tabes was found. When seen by the writers three years later, a sequestrum had just separated comprising the whole of the horizontal ramus of the jaw and part of the ascending ramus. Buccal leucoplasia was present. There was no history of infection, and the loss of teeth was not only the first symptom of latent syphilis, but also the first sign of tabes. J. D. ROLLESTON.

EXTENSIVE DERMATITIS MEDICAMENTOSA FOLLOWING THE
(703) **USE OF MIDOL (PYRAMIDON).** P. E. BECHET, *Journ. Amer. Med. Assoc.*, 1912, lix., p. 1289.

A CASE of extensive erythemato-papular eruption on the face and trunk with pruritus of the scalp and purpura of the legs and feet in a tabetic man aged 52, who, for four days, had been taking full doses of the drug for lightning pains. J. D. ROLLESTON.

CHRONIC MYELITIS AND INTENTION TREMOR. (A proposito
(704) **della mielite cronica e del tremore intenzionale.)** C. ANGELA, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 8, 1912, p. 466.

THE author describes a case of spasticity of all four limbs with well-marked intention tremor that was diagnosed during life as

disseminated sclerosis. Post mortem a condition of multiple chronic myelitis was found. The lesions were chiefly confined to the cord, but a small patch of myelitis involving the hypoglossal nucleus was also found. Neglecting this latter lesion, the author assumes that he has a case demonstrating the occurrence of intention tremor in purely spinal disease. F. GOLLA.

NOTES ON A CASE IN WHICH CERTAIN SYMPTOMS OF
(705) **SYRINGOMYELIA FOLLOWED ENTERIC FEVER.** JOHN BROWNLEE, *Glasgow Med. Journ.*, Vol. lxxviii., No. 5, Nov. 1912, p. 350.

SPINAL affections following enteric fever are comparatively rare. A few instances are known of spinal meningitis accompanying cerebral meningitis. The most common lesion is "typhoid spine," where great pain occurs in the back and renders movement almost impossible. It usually follows very severe attacks and disappears after a lengthy convalescence. It is probably associated with typhoid nodules inside the spinal canal.

This case is that of a man, aged 32, who developed typhoid fever in January 1910. The temperature reached normal on 23rd February. On 25th March thrombosis of the left leg developed and in April he had an attack of psoriasis guttata for which lymphangioplasty was performed. He was allowed out of bed on 7th July, when he was found to be paraplegic. The muscles were very weak and their co-ordination poor. There was no wasting. The patellar reflexes were exaggerated and Babinski's sign and ankle-clonus were present. The legs felt cold, touch was not affected, but sensation was vague from the middle of the thighs downwards and abolished below the knees. The sphincters were unaffected. The areas of aberrant sensation had increased by 13th August, but one month later improvement had set in and was steadily maintained. He was able to return to work eight months later. There was no return of the disease by July 1912.

This case is different from "typhoid spine." Pain was absent. It was probably due to a typhoid focus in the spinal cord, and possibly a slight syringomyelia may have been present before this attack and formed a focus to which the typhoid bacilli found an entry. A. NINIAN BRUCE.

A CASE OF UNILATERAL ANGIOSPASTIC GANGRENE. (Ein
(706) **Fall von halbseitiger angiospastischer Gangrän.)** BENDERS, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliii., H. 1-2, 1912, p. 1.

A WOMAN of 44, during an attack of acute and violent mania, injured her back apparently by falling out of bed, which happened

on more than one occasion, and one morning complained of diffuse pains in the distal extremities of the right arm and the right leg: the right fingers were flexed at the phalanges, the right leg was flexed and in the position of the defence-reflex. Two days later the tips of the fingers were black and dry, with the exception of the little finger, which was white, cold, and anæsthetic. All the toes of the right foot, similarly, were blackened, and above that area of change was an area of anæmia. The condition gradually progressed into one of complete gangrene. According to the author the original lesion was a hæmorrhage in the right half of the cord, close to the lateral horn of grey matter, which, acting as a focus of irritation on the neighbouring vasomotor paths, produced a condition of angiospasm and so led to gangrene.

S. A. K. WILSON.

GASTRIC AND INTESTINAL LOCALISATION OF NEUROFIBRO-
(707) **MATOSIS. (Contribution à l'étude des localisations gastriques et intestinales de la neurofibromatose.)** A. L. ISRAEL, *Thèses de Lyon*, 1910-11, No. 100.

THIS thesis, which was inspired by Leriche, contains the history of his case (*v. Review*, 1912, x. p. 33), together with five others from the literature.

J. D. ROLLESTON.

TRAUMATIC DISEASES OF THE SPINAL CORD, APROPOS OF
(708) **A CASE OF PROGRESSIVE SPINAL AMYOTROPHY FROM OVER EXERTION. (Zur Lehre von den Unfallserkrankungen des Rückenmarks, anschliessend an einen Fall von progressiver spinaler Amyotrophie durch Überanstrengung.)** ERB, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xlv., H. 1, 1912, p. 1.

PROFESSOR ERB describes a case where progressive spinal muscular atrophy appears definitely to have ensued on a sudden severe muscular effort.

The patient was a healthy man of 31, a labourer in a vineyard. On 7th April 1910, after having been at work pruning vines for some two hours, he came to a branch of unusual thickness (about 3 cm. in diameter), and making a sudden powerful muscular effort to cut it through with a pair of shears, he immediately felt a violent pain in the ball of the right thumb, so severe that he had to stop using the right hand, and finished his work that day with his left. The pain continued for some days, but there was no indication of local injury. After treatment with embrocation and otherwise, the symptoms disappeared in a week or two, but the right arm still felt a little weak, and he used his left more than before at his work. In the course of about two months

he noticed that the right hand was becoming definitely weak, and the muscles of the right hand were beginning to waste: the weakness and wasting gradually spread to the forearm, and in a less degree to the muscles of the upper arm and shoulder. There were no pains, no paræsthesiæ, no loss of sensibility. When the patient was seen by Erb, in December 1911, the right arm presented the typical appearance of progressive muscular atrophy: there was marked atrophy of all the small hand muscles, of the extensor groups on the forearm, and to a less extent of the flexors and supinator longus: the biceps and brachialis anticus were also atrophic and weak, and in a less degree the triceps: the deltoid also was weak and wasted. There was a good deal of muscular fibrillation, and the arm reflexes on the right side were present and possibly a little brisker than on the left. The plantar response was flexor on both sides.

There is an excellent critical analysis of the case, and of analogous cases from the literature, and the view is adopted that a sudden violent muscular strain, followed by ordinary use of the same muscles again, initiated a change which led to the development of a progressive spinal disease.

S. A. K. WILSON.

HYPERTRICHOSIS AND SPINA BIFIDA OCCULTA. EBSTEIN, (709) *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliii., H. 1-2, 1912, p. 81.

THE author describes two interesting cases of this not infrequent association. Among numerous references to the literature there is none to Gowers' recent case of cervical myelopathic hypertrichosis, when a unilateral overgrowth of hair over the cervical spinal column was associated with unilateral signs of syringomyelia. S. A. K. WILSON.

INTERMITTENT CLAUDICATION ASSOCIATED WITH POLY-
(710) **NEURITIS. (Dysbasia angiosclerotica polyneuritica.)** STARKER, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xlv., H. 1, 1912, p. 52.

A MAN of 74, arteriosclerotic, presented the typical symptoms of intermittent claudication in the left leg, and to a less extent in the other: in addition, the knee and Achilles jerks were absent: the peroneal and anterior tibial groups were weak and wasted on both sides, and there was a certain diminution of sensibility with considerable muscular tenderness.

The author thinks the combination of neuritis and intermittent claudication is probably not so rare as might be supposed, and considers the latter occasions the former. S. A. K. WILSON.

ON ACUTE POLIOMYELITIS AND POLYNEURITIS. (Über akute
(711) **Poliomyelitis und Polyneuritis.)** IVAR WICKMAN, *Ztsch. f. d. ges. Neurol. u. Psychiat.*, 1911, iv. (Orig.), p. 54.

THOUGH anatomical proof is lacking, clinical experience justifies the distinction of a neuritic form of Heine-Medin's disease, or rather of a form resembling neuritis. It has been observed in several epidemics and its existence has been acknowledged by leading neurologists. It is at present uncertain whether the symptoms are due to poliomyelitic processes only or to neuritic processes or to a combination of both. Wickman records an illustrative case in a child, aged 3 years, whose symptoms were attributed to toxic neuritis caused by a snake bite, though the case was undoubtedly one of acute poliomyelitis. J. D. ROLLESTON.

THE PATHOLOGY OF EPIDEMIC POLIOMYELITIS. (Zur Patho-
(712) **logie der epidemischen Kinderlähmung.)** SCHAUB, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliii., H. 1-2, 1912, p. 100.

A STUDY of sixty-five cases from an epidemic in Hesse-Nassau in the summer of 1910. S. A. K. WILSON.

THE INEQUALITY OF THE PUPILS IN CEREBRAL HEMI-
(713) **PLEGIA. (L'inégalité pupillaire au cours de l'hémiplégie cérébrale.)** M. KLIPPEL et MACHIEU-PIERRE WEIL, *Semaine médicale*, No. 46, Nov. 13, 1912, p. 541.

ACCORDING to the paper a well-marked and permanent inequality of the pupils occurs in a considerable number (about 40 per cent.) of cases of cerebral hemiplegia. The mechanism of the production of this inequality is explained, in fact, by a reference to the experimental work of electrical stimulation of the cortex.

During the existence of coma, the pupil on the side of the paralysis, that is, on the side opposite to the brain lesion, is the smaller of the two, and after the coma has passed off, the pupil on the paralysed side is the larger of the two. In the former case, this is due to contraction of the pupil owing to an inhibition of function of the injured hemisphere, and, in the latter case, it is due to an irritation of this hemisphere. P. W. SAUNDERS.

MITRAL STENOSIS; PERIPHERAL EMBOLI CAUSING PARTIAL
(714) **MONOPLEGIA WITH SYMPTOMS SIMULATING CEREBRAL EMBOLISM.** G. G. ALDERSON, *Brit. Med. Journ.*, Oct. 26, 1912, p. 1096.

A SHORT record of a case of a woman, aged 42, who developed mitral disease after an attack of rheumatic fever six years

previously. Eighteen days before admission to hospital, while stooping suddenly, she felt sick and giddy, and the left forearm and hand fell powerless to the side. A second embolus affecting the left lower limb occurred three days later. She again felt sick and giddy, and simultaneously "lost power" in the left leg and foot. She was sent to hospital as a case of cerebral embolism, when it was found that the left radial pulse was absent, and that pulsation was absent from some of the main arteries of the foot. Four days after admission she died suddenly.

At the necropsy no cerebral lesions could be found to account for the loss of power in the limbs. The upper part of the left brachial artery was blocked by a reddish-grey clot of recent formation, and another thrombus was found filling the lower half of the left femoral and the whole of the popliteal arteries below. A large *ante-mortem* clot, 2½ in. long, was found in the right auricle.

A. NINIAN BRUCE.

PARAMENINGOCOCCAL MENINGITIS, TREATED AND CURED
(715) **BY ANTIPARAMENINGOCOCCAL SERUM. FAILURE OF ANTIMENINGOCOCCAL SERUM. (Méningite à paraméningocoques, traitée et guérie par le sérum antiparameningococcique. Inefficacité du sérum antiméningococcique.)** WIDAL and WEISSENBACH. *Bull. de l'Acad. d. Méd.*, 1912, lxviii., p. 81.

THE patient was a woman, aged 42, in whom the clinical symptoms and character of the spinal fluid were those of meningococcal meningitis, but no improvement followed injection of antimeningococcal serum. The possibility of parameningococcal meningitis then suggested itself, and before bacteriological tests were carried out which proved the correctness of this view, antiparameningococcal serum was injected and rapid recovery took place.

J. D. ROLLESTON.

PNEUMOBACILLUS CEREBRO-SPINAL MENINGITIS. (Méningite
(716) **cérébro-spinale à pneumobacilles de Friedländer.)** A. SIREDEY, H. LEMAIRE, and Mlle. DE JONG, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1912, xxxiv., p. 258.

MENINGITIS due to Friedländer's organism is very rare (*v. Review*, 1911, ix., p. 84). The writers record a fatal case in an alcoholic man, aged 26. The symptoms of meningitis had been preceded by a sore throat, from which the infection probably originated. Pneumobacilli were found in the purulent cerebro-spinal fluid during life. The skin and conjunctivæ showed a markedly icteric tint, and post mortem the liver showed extreme

fatty degeneration, which accounted for the diminished resistance to infection. A mouse inoculated with the cerebro-spinal fluid died in twenty-four hours, and pneumobacilli were found in its heart's blood, liver, and spleen. J. D. ROLLESTON.

PNEUMOBACILLUS SEPTICÆMIA. BRONCHO-PNEUMONIA, ARTHRITIS, TOXIC MENINGEAL REACTION AND MENINGITIS. PRESENCE OF THE BACILLUS IN THE SPUTUM, BLOOD, AND CEREBRO-SPINAL FLUID. (Septicémie à pneumo-bacilles de Friedländer. Broncho-pneumonie, arthrites, réaction méningée toxique et méningite. Presence du bacille dans les crachats, le sang, le liquide céphalo-rachidien avec isolement dans le sang et dans le liquide.) (717) M. CARRIEU and J. ANGLADE, *Rev. de Méd.*, 1912, xxxii., p. 702.

THE patient was a man aged 50, the subject of chronic alcoholism. Recovery followed intraspinal injection of electrargol. A review of the literature is appended. J. D. ROLLESTON.

A CASE OF CHRONIC HÆMORRHAGIC CEREBRAL PACHYMENINGITIS. (Un caso di pachimeningite cerebrale cronica emorragica.) (718) E. CIARLA, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 5, 1912, p. 259.

IN this case without prodromata there was a gradual onset and development of a complete right hemiplegia, associated with hemianalgesia of the same side and total aphasia. The case was wrongly diagnosed as one of thrombosis of the left Sylvian artery, whereas, post mortem, a large clot pressing on the left frontal area was found. Some general observations on the diagnosis of similar conditions are appended. F. GOLLA.

SECONDARY SYPHILITIC MENINGITIS. (719) A. W. M. ELLIS, *Journ. Amer. Med. Assoc.*, 1912, lix., p. 1263.

A RECORD of six cases in which signs of meningeal involvement appeared from one to four months after the chancre. In four the symptoms were never obtrusive, and only lumbar puncture revealed the nature of the process. Ellis regards the so-called nerve recurrences after salvarsan as examples of such a meningitis. He denies the contention that salvarsan predisposes to diseases of the nervous system. In four of his cases nervous symptoms had been present before salvarsan had been given.

J. D. ROLLESTON.

CHEMO-IMMUNOLOGICAL STUDIES ON LOCALISED INFEC-
(720) **TIONS.—Fourth Paper: EXPERIMENTAL PNEUMOCOCCAL MENINGITIS AND ITS SPECIFIC TREATMENT.** R. L. LAMAR, *Journ. Exp. Med.*, Vol. xvi., No. 5., Nov. 1, 1912, p. 581.

VIRULENT pneumococci injected into the cranial or spinal cavities of monkeys produce constantly a meningitis closely resembling pneumococcus meningitis in man, except that the experimental disease pursues a more rapid course to the invariable death of the untreated animal.

An homologous immune pneumococcus serum injected into the spinal canal exerts a restraining influence upon the disease to the extent that when employed early it prevented, exceptionally, the occurrence of infection and thus saved the life of the animal, and when given later, it at first retarded the disease but subsequently exerted no beneficial action and was powerless to save life.

A mixture of sodium oleate, immune serum, and boric acid excited regularly a more powerful action than immune serum alone, and not only prevented the occurrence of infection, but also, when administered repeatedly, arrested the progress of an actually established infection and led often, to the enduring and perfect recovery of the inoculated animal.

It is proposed to employ a similar mixture in the direct treatment of pneumococcic meningitis, and possibly of still other accessible local pneumococcic infections in man.

A. NINIAN BRUCE.

A CONTRIBUTION TO SERUM AND VACCINE THERAPY IN
(721) **THE TREATMENT OF INTRACRANIAL COMPLICATIONS OF MIDDLE EAR SUPPURATION.** A. LOGAN TURNER, *Journ. Larnygol., Rhinol. and Otol.*, Vol. xxvii., Nos. 3-7, March-July 1912.

Serum Therapy.—A short account is given of five cases treated with antistreptococcic serum subsequent to operation; three recovered, and two died. Four were cases of chronic middle ear suppuration, one of them associated with disease of the labyrinth, while the fifth was a case of acute otitis media with labyrinthine symptoms. The intracranial complications were as follows: acute leptomeningitis in three, sigmoid sinus thrombosis in one, and serous meningitis in one. Two of the cases of acute leptomeningitis and the case of serous meningitis recovered; one case of leptomeningitis and the case of sinus thrombosis were fatal. In three of the cases of meningitis and in the case of sinus thrombosis the *Streptococcus pyogenes* was the predominant organism, while the remaining case of meningitis was probably due to the *Bacillus aërogenes capsulatus.*

In all a polyvalent antistreptococcic serum was used. The three cases which recovered came under treatment within a week of the onset of acute symptoms; the two which died, in the third week. In the four cases with meningitis the antistreptococcic serum was injected subcutaneously and into the spinal canal; in the case of sinus thrombosis subcutaneously only. After a short discussion of the cases the author concludes that one of them only furnishes any positive evidence of the efficacy of the serum therapy as an adjunct to operation.

Vaccine Therapy.—A short account is given of four cases in which the treatment was assisted by the administration of autogenous vaccines. Two were cases of sigmoid sinus thrombosis, and in two there was sinus thrombosis associated with meningitis. In all there was chronic middle ear suppuration. Three recovered and one died. Operation was performed in every instance, and autogenous vaccines were employed. The cases came under treatment from six to fourteen days after the onset of acute symptoms. The vaccines were given daily or on alternate days until improvement took place as evidenced by fall of temperature. On the temperature rising again they were recommenced. In no case were more than nine consecutive injections given. The author discusses the cases and thinks that in one at least the vaccines were of value. R. VÉREL.

ACUTE HÆMORRHAGIC ENCEPHALITIS. (Klinisch-pathologi-
(722) **scher Beitrag zur Frage der akuten hämorrhagischen Encephalitis.)** LANGBEIN and OELLER, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xlv., H. 1, 1912, p. 58.

A 35-YEAR old patient, previously in perfect health, complained of severe headache, and in the course of a fortnight became restless, and a few hours later comatose, with pin-point pupils. Tonic convulsions of the upper extremities came on, and at this stage a lumbar puncture revealed a blood-stained fluid under great pressure. Death ensued half an hour later. There were apparently no localising symptoms or signs, and the case was obscure from the beginning. At the necropsy the vena magna was found thrombosed, as also the venæ cerebri internæ: the optic thalamus on both sides was thickly studded with hæmorrhages: the internal capsules similarly were invaded: and there were smaller hæmorrhages in the corpus striatum, also in the fornix and roof of the ventricles. From a careful examination of the material the authors conclude that the initial lesion was an acute inflammatory condition of the tela chorioidea and the venous plexuses of the

ventricles. The hæmorrhages were secondary to the thrombosis of the veins. The actual morbid agent cannot be fixed with certainty: it is supposed that the condition was tuberculous in origin.

S. A. K. WILSON.

THE PHYSIOPATHOLOGICAL EFFECTS OF A TRAUMATIC
(723) **LESION OF THE RIGHT PREFRONTAL LOBE. (Effetti fisiopatologici consecutivi all lesione traumatica del lobo prefrontale destro nell uomo.)** ODOARDO ASCENZI, *Riv. di Patol. nerv. e ment.*, Vol. 16, 1912, p. 649.

THIS paper contains an exhaustive psychical examination of an illiterate who had two years previously sustained extensive damage to the right frontal lobe from a kick of a horse, and had developed traumatic epilepsy. The author concludes that it is possible for a man to sustain loss of the whole superior and median frontal gyrus, the anterior portion of the third frontal gyrus, and the orbital portion of the right prefrontal lobe without exhibiting any marked impairment of his psychical functions beyond a slight diminution of his imaginative power.

F. GOLLA.

CLINICAL CONTRIBUTIONS TO THE STUDY OF INTRA-
(724) **CRANIAL ANEURISMS. (Klinische Beiträge zur Kenntnis der Hirnaneurysmen.)** WICHERN, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliv., H. 3, 1912, p. 220.

AN interesting study based on some 22 cases with pathological examination. Of the 22, 13 were in women: further, 3 of the patients died between the ages of 20 and 29, 6 in each of the fourth, fifth, and sixth decennial periods, and 1 was over 60 years. Five of the 22 cases were undoubtedly cases of a congenital nature; and probably 6 others belonged to this group. There were 2 cases where arteriosclerosis was the underlying condition: 2 of a syphilitic nature, and 4 were certainly, 1 probably, of embolic origin. In every one of the 22 cases the aneurism ruptured: in 15 of them it was clear that there had been more than one leakage from the vessel. The middle cerebral artery was involved eight times, the internal carotid and left posterior inferior cerebellar artery twice, the anterior and posterior communicating, the right and left anterior cerebral, the basilar, the right and left vertebral, the right anterior inferior cerebellar, each once.

S. A. K. WILSON.

A CLINICAL AND PATHOLOGICAL STUDY OF LEFT-SIDED SUBINSULAR LESIONS. (Contributo clinico ed anatamo patologico allo studio delle lesioni subinsulari di sinistra.) A. ROMAGNA MANOIA, *Riv. di Patol. nerv. e ment.*, Vol. xvii., Fasc. 3, 1912, p. 129.

(725)

A PATIENT, æt. 68, had been under the author's care for maniacal depressive psychosis ever since 1893. During the whole of this period she suffered from alternating states of excitement and depression. On 30th May 1911 she suddenly cried out while at exercise, and fell to the ground. She was found to be suffering from right hemiplegia. Careful examination discovered no signs of either sensory or motor aphasia. She died of bronchopneumonia in July, two months after the fit.

The post-mortem revealed a lesion confined to the region of the claustrum and the external capsule corresponding to the middle gyrus and the two gyri posteriores insulæ. The absence of any aphasia in this case, in view of the contiguity of the area of the lesion with the posterior part of the insula, would appear to be evidence against the views of Monakow and Grannulli as to the word-sensory functions of the insula, and equally so against that of Wernicke, who considers that the insula serves as an area of association between the word-auditory and the motor speech areas. The author does not state whether his patient was right-handed or literate.

F. GOLLA.

MULTIPLE SCLEROSIS. L. HARRISON METTLER, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 18, Nov. 2, 1912, p. 1607.

(726)

MULTIPLE sclerosis is a rare disease in America. Three cases are here reported.

The first is that of a man, aged 32, with marked periods of remissions. There was a neuropathic family history.

The second was also a typical case in a woman, aged 30, with a slight neuropathic heredity, and seems to have followed puerperal infection.

The third case occurred in a man, aged 34, and was later thought to be a case of syphilis of the central nervous system.

The pathology is briefly discussed, and the author considers that it is highly desirable to distinguish the disseminated inflammations from the disseminated (abiotrophic) scleroses.

A. NINIAN BRUCE.

A CASE OF MULTIPLE CEREBRO-SPINAL SCLEROSIS, PRE-
(727) **SENTING UNUSUAL SYMPTOMS SUGGESTING PARESIS.**
F. X. DERCUM, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 18, Nov. 2, 1912, p. 1612.

THE patient was aged 20. When 5 or 6 years old he was struck on the head by a baseball bat, but required no treatment. His father suffered from locomotor ataxia. In April 1907 he was ill for three weeks with frontal headache and vomiting. It was then noticed that his left leg and left arm were weak. In February 1908 his right arm and leg also became weak. In 1909 he had a marked ataxic and spastic gait, the upper extremities were ataxic, a fine intention tremor of both hands, tongue, and lips was present; slight left Babinski, both knee jerks exaggerated, sphincters unaffected and sensation normal. Nystagmus to right; pupils react to light and to accommodation. Speech confused and indistinct, and suggested dementia præcox. He developed double optic atrophy and squint, he became bed-ridden, happy and buoyant, and died in 1910 from gastritis and nephritis.

It was considered at first to be an early case of general paralysis, but at the autopsy it was found to be disseminated sclerosis. The areas of sclerosis were extremely numerous and of all sizes. Large areas were found in the white matter and basal ganglia, but everywhere large numbers of small subcortical and cortical areas of sclerosis were found, especially in the frontal lobes, precentral and postcentral convolutions, temporal lobes, cuneus and on the mesial surface. Many seemed to be of long-standing, and the author attributes the mental condition to this cortical involvement.

Reference is made to some other cases of disseminated sclerosis simulating general paresis. A. NINIAN BRUCE.

ON A HITHERTO UNRECOGNISED DISEASE ALLIED TO
(728) **"PSEUDOSCLEROSIS," &c. (Über eine der "Pseudosklerose" nahestehende bisher unbekannte Krankheit, gekennzeichnet durch Tremor, psychische Störungen, bräunliche Pigmentierung bestimmter Gewebe, insbesondere auch der Hornhautperipherie, Lebercirrhose.)** FLEISCHER, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliv., H. 3, 1912, p. 179.

Case I.—The patient, a man of 23, had suffered at the ages of 12, 16, 18, and 19 from pains in the limbs, and since the age of 15 had found his legs easily tired with muscular exertion. For three years previously to coming under observation (1901) he had suffered from tremor of arms, legs, and trunk, which increased with voluntary movement, and did not entirely disappear when the

limbs were at rest. The deep reflexes were exaggerated and ankle clonus was present. There was no ocular disturbance, no speech defect, and no loss of sensibility. A diagnosis of disseminated sclerosis was at that time made.

At the same time, it was noted that round the periphery of the cornea there was a ring of greenish pigmentation, which diminished in degree in an inward direction. Otherwise the cornea was normal. During his stay in the clinic the patient was frequently examined: the plantar response was flexor and the abdominal reflexes were brisk. His gait was irregular without any typical defect: the tremor was more an "action-tremor" than an "intention-tremor."

Two years later (1903) it was remarked that the symptoms were progressing and that the patient did not see well at night. Again, three years later (1906), it was found that the tremor was more constant and more severe, although occasionally it disappeared: the abdominal reflexes could not be obtained, and there were slight spasms in the arms and legs. A lumbar puncture was negative. The patient complained greatly of headache and giddiness. Some seven years from the date of his first coming under observation (1908), the spastic condition of the extremities had much increased, and about another year later his mental condition definitely deteriorated: he became silly and childish, and laughed at nothing; he also complained of abdominal pains. The liver was apparently enlarged and tender on palpation and sugar was found in the urine. The greenish ring of pigmentation in the cornea was darker and about 2 mm. in breadth: there was also a slight greenish-brown coloration of the skin of the face, neck, and hands. Later both sugar and albumen were present in the urine. Gradual emaciation set in, and the patient died in May 1909.

At the necropsy the liver was rather small: it was very cirrhotic, and the cirrhotic strands were irregularly pigmented. The spleen was somewhat enlarged. The kidneys showed pathological changes. In one or two places the cranial meninges were pigmented. Microscopical examination of the brain and cord did not reveal any abnormality. There was no trace of disseminated sclerosis.

A full description is given of the pigmentary deposits in the eyes, in the kidneys, liver, spleen, lungs, skin, and elsewhere. The suprarenals were normal.

Unfortunately there is no reference to the condition of the basal ganglia, in particular the lenticular nucleus, or of the subthalamic and tegmental regions.

Case II.—The patient was a man of 29, who in 1901 began to complain of shaking of the hands, rendering writing impossible, and some months later of tremors also in the legs. Mental

deterioration set in and the patient was removed to an institution. It was there noted that there were pronounced tremors of the limbs, but no disturbance of speech: there was horizontal nystagmus and internal strabismus. Volitional movement exaggerated the tremor: the arms were ataxic, but not the legs. There was no muscular rigidity. The reflexes were brisk: the abdominal reflexes were present. The patient presented the same corneal ring of greenish pigmentation as in the first case. In 1903, after further examination, a diagnosis of hebephrenia and pseudosclerosis was made. The patient died suddenly in 1906.

At the necropsy the liver was found to be cirrhosed; the spleen was enlarged. The pia over the parietal lobes was thickened and milky, and in some places decortication occurred when it was stripped. No sclerotic areas or pigmented foci were found in the brain.

No microscopical examination of the central nervous system was made.

There is no reference to the condition of the basal ganglia, corpus striatum, subthalamic and tegmental regions.

Case III.—The patient was a man of 32, who presented certain symptoms which in 1902, in Heidelberg, were diagnosed as disseminated sclerosis. In 1903 he was examined and the following points noted: nystagmoid jerking on lateral movements of the eyes: tremor of the tongue: scanning speech without any defect of articulation: marked tremor of limbs, head and trunk, increasing with volitional movement: some rigidity of the musculature generally: double flexor response: abdominal reflexes present: no disturbance of sensibility.

There is a very full description and discussion of the nature of the pigmentary deposits in the first two cases, and the obscurity of its origin is fully dealt with. On the other hand, it is to be regretted that there is no attempt to analyse the neurological symptoms, while the references to the literature are scant and inadequate. The group of, in many ways, analogous cases described by the reviewer as "progressive lenticular degeneration" is calculated to throw light on the cases, scattered through the literature, which are unsatisfactorily classed as "pseudosclerosis."

S. A. K. Wilson.

(729) **DIABETES INSIPIDUS IN A BOY WITH POSITIVE WASSERMANN'S REACTION; REMARKS ON POLYURIA IN CHILDREN AND INFANTILISM.** F. Parkes Weber, *Brit. Journ. Child. Dis.*, 1912, ix., p. 211.

The boy was aged 10 years and of active intelligence, but somewhat small for his age. Polyuria and polydipsia were first noted

in his third year, and up to his seventh year he had had nocturnal enuresis. There was no evidence of chronic interstitial nephritis. A skiagram showed that the sella turcica was of normal dimensions, and thus did not confirm the view that diabetes insipidus is due to disease of the pars intermedia of the hypophysis. Though there was no history suggestive of syphilis, the blood serum gave a positive Wassermann reaction. J. D. ROLLESTON.

(730) **COLOSSAL OBESITY WITH INFANTILISM. (ADIPOSO-GENITAL SYNDROME WITHOUT PITUITARY TUMOUR.) GOOD EFFECTS FROM PITUITARY AND TESTICULAR OPOTHERAPY. (Un cas d'obésité colossale avec infantilisme. (Syndrome adiposo-génital sans tumeur hypophysaire.) Bons effets de l'opothérapie hypophyso-testiculaire.)** L. LÉVI and BARTHELÉMY, *Bull. et Mem. Soc. méd. Hôp. de Paris*, 1912, xxiv., p. 151.

THE patient was a man, aged 27, 5 ft. 7 in. in height, and over 20 stone in weight. The obesity, which had first appeared at the age of 10 years, was associated with an arrest of sexual development, and an absence of secondary sexual characteristics. Ophthalmoscopic examination was negative, and the X-rays showed that the sella turcica was not enlarged. Pituitary insufficiency, however, was shown by tachycardia, oliguria, torpor, and obesity. Under pituitary extract hair appeared on the chin, axillæ, chest, pubis, and limbs. There was increase in diuresis, the mental symptoms improved, and the obesity diminished. On the addition of testicular extract further improvement occurred, and genital development became marked. J. D. ROLLESTON.

(731) **A CONTRIBUTION TO THE STUDY OF THE INFANTILE TYPE OF GIGANTISM. (Contributo allo studio clinico del gigantismo infantile.)** ODOARDO ASCENZI, *Riv. di Patol. nerv. e ment.*, Vol. 17, Fasc. 7, 1912, p. 386.

A DESCRIPTION of a young giant admitted to the asylum on account of mental deficiency. He showed marked infantilism in his psychical state, and the generative organs were undeveloped. The case served as a text for a disquisition on recent literature concerning gigantism and the functions of the hypophysis.

F. GOLLA.

(732) **INFANTILISM WITH CHRONIC INTESTINAL NEPHRITIS.** A. E. NAISH, *Brit. Journ. Child. Dis.*, 1912, ix., p. 33.

A RECORD of four cases; three in males, aged $9\frac{1}{2}$, $16\frac{1}{2}$, and $19\frac{1}{2}$ years respectively, and one in a female aged 17 years. All died of

uræmia. In the first two, a necropsy was held and confirmed the diagnosis of chronic interstitial nephritis. The physical signs of infantilism have been fairly pronounced in all the cases on record, but the mental symptoms vary and may be almost entirely absent.

J. D. ROLLESTON.

RENAL INFANTILISM. R. MILLER and L. PARSONS, *Brit. Journ.* (733) *Child. Dis.*, 1912, ix., p. 289.

RENAL infantilism denotes a class of symptomatic infantilism secondary to a perversion of the renal functions. Two types are distinguished, in either of which the polydipsia, polyuria, and retarded development may be present from birth or develop during early childhood. The first type is associated with renal disease which in hitherto recorded cases has been a non-syphilitic chronic interstitial nephritis. The infantilism in this type is of a severe grade, and death occurs in childhood or early adolescence from uræmia or pneumonia. The second type occurs apart from renal disease (diabetes insipidus) and is due to inherited syphilis, organic nervous disease, or other causes of diabetes insipidus. The infantilism in this type is not of a severe grade. Treatment in either type has hitherto proved ineffectual.

J. D. ROLLESTON.

THE ACTION OF FEBRILE PROCESSES ON METALUETIC
(734) **DISEASES OF THE CENTRAL NERVOUS SYSTEM. (Ueber die Einwirkung fieberhafter Prozesse auf metaluetische Erkrankungen des Zentralnervensystems.)** Prof. FRIEDLÄNDER, *Münch. Med. Woch.*, 1912, lix., p. 2038.

THAT febrile processes may have a favourable influence on mental disease has been known from the times of Hippocrates. This is especially true of typhoid fever, and Friedländer was therefore induced to give mental patients injections of dead typhoid bacilli. He did not succeed, however, in producing any febrile reaction, and therefore made use of tuberculin (A.T.) on a number of patients in private practice suffering from metaluetic diseases of the central nervous system. Although clinically the cases were typical examples of general paralysis or tabo-paralysis, the non-committal term "metaluetic" was used, because either a necropsy was impracticable, or because the patients were still alive. Friedländer begins with doses of ·0005 tuberculin, and if no rise of temperature occurs, as is the rule in the non-tuberculous, ·001 is given in twenty-four hours. If the temperature rises then, he waits till it falls to 37° C., and then gives doses of ·005, ·02, ·04, and ·06 in larger or shorter intervals, until ·1 or ·3 is reached. Two illustrative cases are recorded:—

1. Man, aged 37, tabo-paralysis. The case ended fatally, but the knee jerks and reaction to light which had previously been lost, returned after treatment.

2. Man, aged 42. General paralysis Knee jerks and reaction to light returned, Wassermann's reaction, previously positive, became negative, and the patient was able to resume his work after treatment (*cf. Review*, 1912, x., p. 398).

J. D. ROLLESTON.

PREVALENCE AND INTENSITY OF SYPHILIS IN THE PAST AND AT THE PRESENT DAY. NORMAN MOORE, *Proc. Roy. Soc. Med.*, 1912, v., No. 9, Supplement, p. 29.
(735)

IN his opening address at the discussion on syphilis at the Royal Society of Medicine, Dr Norman Moore stated that no certain references to syphilis were to be found in Greek or Latin literature. The absence of any allusion to the phenomena of tabes or general paralysis in the writings of Galen is confirmatory evidence that the disease was unknown in ancient Rome. According to Professor Elliott Smith no undoubted syphilitic lesions were discovered in the vast collection of partly broken up mummies and separate bones in the Museum of the Egyptian Medical School at Cairo. All the cases described as syphilis in ancient Egyptian bones were examples of the destructive work of necrophilous beetles.

J. D. ROLLESTON.

IDIOCY AND CONGENITAL SYPHILIS. H. R. DEAN, *Brit. Journ. Child. Dis.*, 1912, x., p. 385.
(736)

OF 330 inmates of the Wilhelmstift idiot asylum at Potsdam examined by Dean, 51 cases or 15·4 per cent., gave a positive Wassermann's reaction. Of these only 7 had definite signs of syphilis, while in 3 or 4 syphilis might have been suspected but could not be diagnosed with certainty. Two cases with definite signs gave a negative reaction. In the remainder the evidence of syphilis rested on the evidence of the serum test. In 12 of the positive cases the cerebro-spinal fluid was examined, but in only one was positive. The percentage of positive reactions diminished rapidly after the 16th year, so that a larger percentage of positive results might have been got from examination of very young cases. Very few of the positive cases showed any evidence of a gross lesion of the central nervous system, and Dean suggests that if a causal relation exists between congenital syphilis and idiocy, the resulting condition should be regarded as parasyphilitic. The paper contains a valuable review of the literature.

J. D. ROLLESTON.

THE CUTANEOUS AND TENDON REFLEXES IN EPILEPSY.

(737) **(I reflessi cutanei e tendinei negli epilettici.)** E. AUDENINO, *Riv. di Patol. nerv. e ment.*, Vol. 17, 1912, p. 193.

THE cutaneous and tendon reflexes of epileptics were studied both in the periods of remission, immediately before fits, and in the period immediately succeeding fits. In the periods of remission the author notes that the so-called essential antagonism between cutaneous and tendon reflexes obtains in about 66 per cent. of his cases. In 51 per cent. the tendon reflexes were increased and one or both cutaneous reflexes diminished or absent. The reverse condition obtained in the remaining 14 per cent.

Asymmetry of either cutaneous or tendon reflexes obtains in 73 per cent. of the cases examined. A crossed asymmetry between one or more cutaneous reflexes and one or more tendon reflexes was found in 29 per cent. Many epileptics were found to present oscillations of the intensity of the reflex response quite independently of the occurrence of fits. Two per cent. of the patients had an extensor response during the period of remission. Dealing with the period immediately before an attack the author is fully able to confirm the observation of Donaggio that the cutaneous reflexes are increased, and the tendon response diminished.

In the postepileptic period the abdominal cutaneous reflexes are absent, the tendon reflexes increased, and the plantar responses are either extensor or absent.

The influence of a preceding epileptic seizure is always more marked with regard to the cutaneous reflexes than the tendon reflexes.

The return to the normal condition of the reflexes after an attack occurs in different individuals at widely different periods.

F. GOLLA.

SOME CASES OF HYSTERIA PRESENTING SYMPTOMS USUALLY FOUND ONLY IN ORGANIC DISEASES.

(738) B. R. TUCKER, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 21, Nov. 23, 1912, p. 1881.

FOUR cases are here recorded.

The first was a mulatto woman, aged 55, with a history of many hysterical seizures from puberty onwards. In 1908, on the anniversary of her wedding day, she was suddenly seized with right hemiplegia without facial involvement or unconsciousness, but with great difficulty and slowness of speech. She recovered after the application of the faradic current. It was then found that nine months earlier her husband had died after a cerebral hæmorrhage with right hemiplegia and aphasia.

The second case was a white woman, aged 17. She was married at 13, first child when 14, and was now extremely emaciated with anæsthesia, and loss of control of sphincters from weakness. She regained control after treatment.

The third case was a white girl, aged 16, who along with hysterical seizures had a unilateral hysterical amblyopia. Complete recovery took place.

The last case was a white woman, aged 19. She had had infrequent hysterical seizures and now presented contracted vision fields, complete anæsthesia of the right leg from the hip down with absolute loss of both knee jerks. She recovered completely but the knee jerks never returned, and as it was found that the mother, who was perfectly healthy, also had no knee jerks, it was regarded as a family phenomenon and probably congenital.

A. NINIAN BRUCE.

THE NONNE-APELT REACTION IN THE CEREBRO-SPINAL FLUID. (Über Liquoruntersuchungen mit besonderer Berücksichtigung der Nonne-Apeltschen Reaktion.) BELTZ, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xliii., H. 1-2, 1912, p. 63.

(739)

THE Nonne-Apelt reaction is an excellent guide in the matter of whether an obscure nervous disease is connected with syphilis or not. It is always positive in general paralysis, and nearly always positive in tabes. A positive finding argues for cerebro-spinal syphilis in a doubtful case of that condition: a negative does not with certainty exclude it. Inflammatory conditions of the meninges usually give a definitely positive reaction. Transient meningeal conditions in the course of pneumonia, leucæmia, &c., may give a faintly positive reaction.

S. A. K. WILSON.

OCCUPATION PALSIES. (Beiträge zur Klinik der Beschaftigungslähmungen.) MIROWSKY, *Deutsch. Zeitschr. f. Nervenheilk.*, Bd. xlv., H. 1, 1912, p. 34.

(740)

THE author describes a number of personal cases of paresis or paralysis resulting from the occupation or vocation of the individual concerned. The first group contains cases of direct injury arising from the patient's trade: the second is concerned with paralysis from lead, arsenic, &c.: the third with cases where muscular strain, acting on particular muscle groups, results in paralysis, and with cases of alcoholism, diabetes, arteriosclerosis, &c., where local symptoms are determined by the conditions under which the patient is working.

There is nothing in the paper that is not already well known.

S. A. K. WILSON.

ABNORMAL SYMPTOMS IN SERUM ANAPHYLAXIS. NEURITIC MANIFESTATIONS. (Accidents d'anaphylaxie sérique à forme anormale. Manifestations neuritiques.) P. THAON, *Rev. de Méd.*, 1912, xxxii., p. 749.

(741)

A PREVIOUSLY healthy man, aged 30, received a subcutaneous injection of 10 c.c. anti-tetanic serum for a wound in the left hand. No local nor general reaction followed. Four years later he injured his right hand, and received another 10 c.c. The wound healed rapidly, but the injection site in the abdomen became œdematous, and the inguinal glands swollen. Nine days after the second injection general urticaria developed accompanied by vomiting, diarrhœa, and syncopal attacks which occurred at frequent intervals for forty-eight hours. About a fortnight later the patient noticed a weakness in the movement of his right arm. On examination, paralysis of the serratus magnus was found with R.D. rapidly followed by muscular atrophy. The various muscles of the upper scapular group were also affected, but to a less degree. The nervous system plays an important part in the pathogeny of anaphylaxis. Richet and others have shown that the anaphylactic substance is accumulated in the nerve centres. In the present case the anaphylactic intoxication must have produced lesions in the brachial plexus or in the corresponding motor cells.

J. D. ROLLESTON.

PSYCHIATRY.

FEMALE GENERAL PARALYSIS IN GREECE. (Über die weibliche progressive Paralyse in Griechenland.) M. OECONOMAKIS, *Ztsch. f. d. ges. Neurol. u. Psychiat.*, 1911, iv. (Orig.), p. 48.

(742)

GENERAL paralysis forms 15 per cent. of all admissions to Greek asylums. In a total of 601 general paralytics in Greece, there were only 30 women, or an average of 1 woman to 19 men. The rarity of the disease in Greek women is due to their spending nearly all their time in work at home. The chances of syphilitic infection are therefore much smaller than for women in large European centres who have to struggle for a livelihood (*cf. Review*, 1912, x., p. 151). In almost all cases there was a history of syphilis, and most cases occurred in women of doubtful morality.

Oeconomakis' case was a woman of Naxos, aged 40, extra-genitally infected, in whom over-exertion, defective nourishment, insufficient rest, and family troubles favoured the onset of the disease.

J. D. ROLLESTON.

ON SUDDEN DEATH IN DEMENTIA PRÆCOX. (Sulle morte
(743) **improvissa nella demenzia precoce.)** G. MONTESANO, *Riv. ital. di Neuropat., Psichiatr. ed Elettroter.*, 1912, v., p. 385.

IN opposition to Reichardt, who stated that histological examination of the brain gave negative results in such cases, Montesano, like Alzheimer, found that in sudden death in dementia præcox certain histological changes were present which were most developed in the neighbourhood of the walls of the cerebral ventricles, and consisted chiefly in an abundant production of amœboid cells, pre-amœboid nuclei, and products of disintegration.

J. D. ROLLESTON.

CASE OF TWO CONSECUTIVE TREPHININGS FOR TRAUMATIC
(744) **INSANITY AFTER AN INTERVAL OF THIRTEEN YEARS —WITH SATISFACTORY RESULT.** W. H. BARKER and C. H. HARDY, *Australian Med. Journ.*, Vol. i., No. 60, Sept. 7, 1912.

A CASE of a woman, now aged 33 years, who sustained a fracture of the skull in 1895 as the result of a horse accident. She developed acute insanity and required asylum treatment. At the junction of the two parietal and occipital bones, exactly over the longitudinal sinus, there existed an oval, shallow depression, about half an inch in length, pressure upon which was followed by pallor, faintness, and marked temporary confusion of intellect. Complete relief from her insanity followed trephining, when certain inflammatory adhesions between the bone and the dura mater were broken down.

She returned to her old place in the family circle, but again relapsed into seeming dementia, and was sent to the asylum. As the condition was progressive, a second incision was made over the left parietal bone. The dura was very tense; there were no adhesions between the dura and the pia, but the longitudinal sinus must have been dragged at least half an inch to the left. The brain was œdematous, and did not pulsate at first locally. Two months later she returned home immensely improved, and has continued so except for one relapse when she returned to hospital for a few weeks.

A. NINIAN BRUCE.

A CASE OF TRAUMATIC PSYCHOSIS ASSOCIATED WITH AN
(745) **OLD DEPRESSED FRACTURE OF THE SKULL, FRONTAL REGION; OPERATION; RECOVERY.** C. E. ATWOOD and A. S. TAYLOR, *Journ. Amer. Med. Assoc.*, Vol. lix., No. 16, Oct. 19, 1912, p. 1447.

A CASE of a man, aged 50, single, who while depressed about business matters and under the influence of liquor, shot himself in the

head. He was not rendered unconscious and was able to walk to the hospital where the bullet was removed. No ill effects followed.

Eleven years after this injury and seven after he had stopped drinking, he slowly developed impaired digestion, insomnia, pains in the head, fear of being alone, and lack of self-confidence and capacity for work. He became afraid that he might again attempt suicide and went voluntarily to a private asylum and remained there for one year and four months. If he left it for a day his symptoms became so unbearable that he hurried back.

Finally it was decided to trephine, and an osteoplastic flap involving the temporal ridge and outer part of the right frontal bone, and the anterior part of the squamous was turned down. On its inner surface, just beneath the bullet wound in the outer table, was a circular depression of bone about 2 cm. in diameter and projecting towards the brain. The brain beneath this felt softer but was of normal colour. The bone flap was laid back in place to prevent complications from adhesions and convalescence was uneventful. He soon expressed a desire to return to work and secured his old position as a buyer ten weeks after the operation. An abstract of the discussion follows.

A. NINIAN BRUCE.

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